BLENDED AND ONLINE LEARNING IN K-12 TRADITIONAL SCHOOL DISTRICTS OF SOUTHWESTERN PENNSYLVANIA

by

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Submitted to the Graduate Faculty of

The School of Education in partial fulfillment

of the requirements for the degree of

Doctor of Education

University of Pittsburgh

2014

UNIVERSITY OF PITTSBURGH

SCHOOL OF EDUCATION

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April 23, 2014

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University of Pittsburgh, 2014

National surveys regarding blended and online programs continue to document an increased enrollment of K-12 students. However, the overall research base for this age group remains limited. Although some states collect and report data of fully online programs, information regarding blended and online programs in traditional school districts continues to evade the research base. This study surveyed district superintendents to investigate the nature of, reasons for, barriers and benefits of implementing blended and online programs in 24 traditional public school districts of three rural counties in southwestern Pennsylvania. Using descriptive statistics, two proportion *z*-tests, and non-parametric statistical assessments (Wilcoxon test, Mann-Whitney *U* test, and Spearman's rho test), results indicated statistically significant findings regarding the nature of blended programs and online programs, differences between urban, fringe of a large district (suburban) and rural districts, as well as districts' wealth (market value aid ratio) and the reasons districts implement blended and online programs as well as the barriers they face with regard to implementation. The final chapter discusses these findings through a disruptive innovation theoretical framework indicating evidence of blended and online learning serving as both disruptive and sustaining innovations and applies the findings from this study to provide a decision-making matrix that traditional school districts may use in planning for blended and online program implementation.

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PREFACE

To my family, thank you for never telling me that my goals were foolish or unattainable. Although the odds were stacked against me, my accomplished goals reflect your continued support, love, and sacrifices. I love you.

To Mom, you have modeled throughout my life a strong work ethic. I look back and wonder how you juggled everything, the whole time making it look so easy. You have always been grace under fire, and I know that I can always count on you, regardless of the challenges I face.

To Shir, you have been my confidant and treated me as one of your own from the start. Thank you for always knowing when I needed an aunt, a friend, a counselor, and a mom.

To Oliver, you are a daily reminder to persevere, regardless of the challenges or circumstances. Thank you for blessing our family.

To Mam-maw, you have been that moral compass throughout my life that guides me to make good choices and strive to be a better person. Thank you for continuing to set a positive example.

To Pappy Jim, you continue to show me that actions speak louder than words. *Saying* that you love someone or *telling* someone you are proud of her is not nearly as meaningful as showing love and pride.

To D.J., you embody lifelong learning. Each day you model the expectations we have of all educators and continue to motivate those around you to strive for more. You picked me up after each breakdown along the way, and you celebrated every milestone with more gusto than even I could muster. From PWDs and trips to Hillman to Saturday post-game analyses, thank you for sharing this journey with me.

To my friends, the family I have chosen, I know that each of you has supported, loved, and yes, made sacrifices throughout this journey. Thank you for your continued understanding and friendship.

To Dr. Charlene Trovato, thank you for guiding me throughout this journey. The time you sacrificed answering emails and phone calls (sometimes daily) and meeting with our dissertationers' group on Saturdays to accommodate our work schedules ensured that a successful dissertation defense was possible. Thank you for your guidance throughout this process.

To Dr. Mary Margaret Kerr, thank you for your guidance throughout courses, Saturday dissertationers' group meetings, and committee service. You, too, sacrificed time and energy to ensure a successful dissertation defense experience. Thank you.

To Dr. William Bickel, thank you for your guidance throughout coursework and service on my committee. Your pragmatic lens helped to shape this publication into a relevant document that will hopefully benefit educational leaders considering blended and online learning opportunities for their learners.

To Dr. Diane Kirk, thank you for your guidance on my committee and for sharing your expertise as a former school district superintendent. You continue to serve as a role model for current and aspiring school district leaders.

To P.J. Grosse, thank you for your guidance with data analysis. I am indebted to your expertise as a master statistician.

1.0 INTRODUCTION

National surveys regarding blended and online programs continue to document an increased enrollment of K-12 students. However, the overall research base for this age group remains limited. Because state education agencies collect data for fully online schools, such as cyber charter schools, improvements in accessing data for blended and online learning programs continue to evolve. Remaining a data deficit, data are not disaggregated for K-12 students who participate in blended and online programs as part of their enrollment in traditional public school districts. Instead, data regarding standardized assessment results, demographics, and additional information regarding students' participation and performance in blended and online learning opportunities continue to elude the research base.

This study will add to the research literature base by using descriptive statistics to describe the blended and online programs implemented in 25 traditional school districts in three counties of southwestern Pennsylvania, and analyze the data through a disruptive innovation theoretical framework. After an overview of online learning and blended learning, the remainder of this chapter will provide readers with the problem statement, purpose statement, research questions, significance of the study, and the definition of terms relevant to the proposed study and the literature provided in the remaining chapters.

1.1 OVERVIEW OF ONLINE LEARNING

Since its inception in the early 1990s, online learning promised to capitalize on the use of technology to provide varied educational opportunities and highly qualified teachers for historically underperforming student populations (Barbour & Ferdig, 2012; Moore et al., 2011; Rice, 2006). Proponents of online learning tout cost-effective means of providing high-quality, equitable educational opportunities for all learners. While few students used online learning at the turn of the twenty-first century, online learning now comprises approximately five percent of the overall school-age student population (Watson et al., 2013). Due to limited access to online learning data, however, this may underestimate the actual percentage of school-age students participating in online learning. Additionally, these benefits may not be a reality for all students in all school districts.

When describing growth in online learning, it can be described through both the number of students enrolled in programs and the variety of implemented program types. Initially, students participated in state-run fully online programs (known in Pennsylvania as cyber charter schools). The pendulum shifted to individual school districts providing online learning programs for their geographic student populations; and recently, the pendulum of online learning ownership has shifted to include multi-district programs with shared decision making and perhaps most importantly, shared costs.

Whether all of these options are available to learners depends on the policies that support or stifle online learning provisions. Policy development lagging behind online learning practice results in schools and states applying antiquated laws to this emerging field. An ongoing debate regarding how online program attendance and financial allocations are determined continues to monopolize the discussion around online learning policy. However, states with the longest

history of online learning, such as Florida, provide guidance to others by using course-level enrollment and successful completion of online courses as contributing factors to account for attendance and financial allocations.

Another policy implication related to online learning focuses on access to technology. While some states address digital inequities regarding access to technology, few address access to online courses with regard to students' specific needs, families' location and income (Watson, 2005; Watson et al., 2004). Perhaps the lack of policies ensuring equitable access for all student populations contributes to the most commonly documented challenge to online learning: lack of resources –technology infrastructure, software, and online instructional expertise of highly qualified teachers and school leaders.

Although emerging, a focused research base regarding online learning for school-aged learners continues to be limited in quantity and quality of studies (Barbour, 2011; Barbour, 2012; Barbour & Reeves, 2008; Rice, 2006). One concern among educators is that due to the scarcity of research available for K-12 student populations (Rice, 2006), online learning opportunities for elementary and secondary school students may be compromised by adult learning research being inappropriately applied. The next section provides an overview of blended learning.

1.2 OVERVIEW OF BLENDED LEARNING

Serving as a hybrid between traditional, face-to-face learning and online learning, blended learning embodies the best of both worlds. Blended learning is "a formal education program in which a student learns at least in part through online learning, with some element of student control over time, place, path, and/or pace; and at least in part in a supervised brick-and-mortar

location away from home; and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience. We define blended schools as stand-alone schools with a school code (as opposed to programs within a school) that deliver much of their curriculum in a blended format and students are required to show up at a physical site for more than just state assessments" (Watson et al., 2013, p.9).

Capitalizing on the instructional expertise of a traditional classroom teacher, as well as the flexibility and resources that online learning provides, multiple models of blended learning are emerging in the literature: rotation models, flex models, self-blend models, and enriched-virtual models. While some of these models function on a school level, others benefit from course-level implementation and flexibility. Although all blend online and traditional learning opportunities, the variance in teachers' roles, students' levels of independence, and the location of online learning define the various models of blended learning.

Overall, blended learning capitalizes on the instructional expertise of traditional classroom instruction and the varied resources of content and time that online content providers and the Internet supply. Although some question the increased isolation that online learning can provide, blended learning offers opportunities for increased interaction among students and teachers by extending the school day as well as the individualized interaction that technology facilitates (Bailey et al., 2013; Bergmann & Sams, 2012).

1.3 PROBLEM STATEMENT

Increased instructional time, variety of course options, and access to highly qualified instructors are among some of the benefits to implementing blended and online instruction; however, access

to these benefits among school-age learners in traditional public schools has not been well documented (Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013). Although documentation of equitable access among comprised student populations is limited, some evidence indicates that blended and online learning options are restricted by zip code (Watson et al., 2013); not all students have access to the high-quality, diverse blended and online learning options that these educational provisions originally promised.

National surveys regarding blended and online programs continue to document an increased enrollment of K-12 students in blended and online programs. However, the overall research base regarding blended and online programs implemented for K-12 students is limited. Although limited, data for fully online schools, such as cyber charter schools, is available; however, data are not disaggregated for K-12 students who participate in blended and online programs (full-time or supplemental) as part of their enrollment in traditional school districts.

1.4 PURPOSE STATEMENT

Although the research regarding blended and online learning is limited, annual reports indicate that single-district blended learning programs account for the fastest-growing area of online learning (Watson et al., 2013). By investigating the nature of blended and online programs in traditional public school districts, the reasons traditional school districts implement blended and online programs, the barriers to implementing blended and online programs in traditional school districts, and the benefits of implementing blended and online programs in traditional school districts, this study will add to the blended and online learning research base by providing a

descriptive account of blended and online practices in traditional public school districts located in three counties of southwestern Pennsylvania.

1.5 RESEARCH QUESTIONS

The following research questions guide the review of literature and proposed study regarding blended and online programs:

1. What is the nature of blended and online learning programs in traditional school districts of three counties in southwestern Pennsylvania?
2. Why do traditional school districts of three counties in southwestern Pennsylvania implement blended and online programs?
3. According to school district superintendents, what are the barriers to implementing blended and online programs in school districts of three counties in southwestern Pennsylvania?
4. According to school district superintendents, what are the benefits to implementing blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?

1.6 SIGNIFICANCE OF THE STUDY

This study will report findings regarding blended and online programs through potentially four groups of respondents: superintendents of traditional school districts that implement online programs; superintendents of traditional school districts that implement blended programs; superintendents of traditional school districts that implement both blended and online programs; and superintendents of traditional school districts that implement neither blended nor online programs.

The results of this study will add to practitioners', researchers', policymakers', and other stakeholders' understanding of blended and online programs being implemented in traditional school districts.

1.7 DEFINITION OF TERMS

As blended and online learning continue to grow, so does the importance of clearly defining the programs implemented and studied. Researchers continue to document inconsistently defined and applied terminology as a limitation of research in this emerging field (Moore et al., 2011; Watson et al., 2013). For purposes of this study, the definitions for terms will be consistently applied throughout this dissertation and study, as described in *Figure 1. Definitions of Terms*.

Term	Definition
A La Carte Model	A blended learning model in which learners enroll in one or more fully online courses, supported by a teacher-of-record and simultaneously enroll in traditional courses to provide a schedule that includes a combination of blended, online and/or traditional

	courses; an example of a disruptive innovation (Christensen, Horn, & Staker, 2013)
Blended Course	A structured course combining online learning and traditional, face-to-face learning with some student control over time, place, path, and/or pace
Blended Learning	"A formal education program in which a student learns at least in part through online learning, with some element of student control over time, place, path, and/or pace; and at least in part in a supervised brick –and mortar location away from home; and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience" (Christensen Institute, 2013; Watson et al., 2013, p.9)
Blended Program	"A standalone school with a school code where most of the school's curriculum is delivered in a blended form. Attendance is required at a physical site during the school year for more than just state assessments" (Watson et al., 2013, p.16)
Course Enrollments	Registration for individual blended or online courses; used to measure supplemental online program growth (Barbour & Ferdig, 2012)
Cyber Charter Schools	
Disruptive Innovation	Products or services that create new definitions of what constitutes good products and services through simpler, more convenient, cost-effective products that appeal to a new customer base (Christensen, Horn, & Johnson, 2011; Christensen, Horn, & Staker, 2013)
Enriched-Virtual Model	A blended learning, whole-school model in which students divide learning time between online delivery of content and attendance at a brick-and-mortar school; an example of a disruptive innovation (Christensen, Horn, & Staker, 2013)
Flex Model	A blended learning model that relies heavily on online learning to individualize learning on a customized schedule among learning modalities with a teacher-of-record at a brick-and-mortar site; an example of a disruptive innovation (Christensen, Horn, & Staker, 2013)
Flipped Classroom	A blended learning model where teachers switch what is typically done in class with what is typically associated with homework by providing students with resources (i.e., videos) to access content that is typically delivered through direct instruction as homework. During class time, teachers answer students' questions, provide remediation, and offer targeted instruction to groups of students based on identified learning needs (Bergmann & Sams, 2012; Tucker, 2012); an example of a sustaining innovation (Christensen, Horn, & Staker, 2013)
Individual-Rotation Model	A blended learning model in which students determine the individualized learning plan and the resources that best support

	their individualized needs, whether course content be delivered online or in a face-to-face setting; an example of a disruptive innovation (Christensen, Horn, & Staker, 2013); also known as a Self-Blend Model (Tucker, 2012)
Lab-Rotation Model	A blended learning model in which students rotate between a traditional classroom and a learning lab for online access to content and instruction; an example of a disruptive innovation (Christensen, Horn, & Staker, 2013; Kim & Thompson, 2012)
Online Program	Serve as the educational provider where students are enrolled full-time (i.e., cyber charter school – however, many school districts are beginning to offer fully online programs) (Watson et al., 2013)
Online Course	A structured, teacher-led course delivered over the Internet where teachers and learners are separated by location and time.
Online Learning	"Teacher-led education that takes place over the Internet, with the teacher and student separated geographically, using a web-based educational delivery system that includes software to provide a structured learning environment. It may be synchronous (communication in which participants interact in real time, such as online video) or asynchronous (communication separated by time, such as email or online discussion forums). It may be accessed from multiple settings (in school and/or out of school buildings)" (Christensen Institute, 2013)
Station-Rotation Model	A blended learning model in which students transition within a classroom on a fixed schedule among modules, of which at least one is online learning (also known as the Classroom-Rotation Model); an example of a sustaining innovation (Christensen, Horn, & Staker, 2013)
Student Enrollments	Registration in blended or online programs; used to measure online program growth (Barbour & Ferdig, 2012)
Supplemental Online Programs	Programs that provide online courses that augment students' course of study in the school where they are enrolled full-time (Watson et al., 2013)
Sustaining Innovation	Products or services that improve leading organizations by producing increasingly better products and services that are sold to companies' existing customers. By producing increasingly better products sold for greater profits, sustaining innovations maintain companies' upward trajectory toward product improvements (Christensen, Horn, & Johnson, 2011; Christensen, Horn, & Staker, 2013).
Traditional Learning	Learning that takes place in a conventional, face-to-face setting

Figure 1. Definition of Terms

2.0 REVIEW OF LITERATURE

Optimistically, online learning gained momentum among educational stakeholders as a provision for rigorous, diverse learning opportunities for students across the United States, regardless of location, socioeconomic needs, or teachers' professional qualifications. In fact, proponents of online learning initially touted the benefits for rural students among those who stood to gain the most from online instruction. While concerns about online course quality surfaced from its inception (Watson et al., 2004), those same trepidations continue to plague online learning today.

Beginning in 2004, a cadre of researchers and education entities published annual reports focused on online learning in a K-12 setting. These *Keeping Pace* reports assess states' policies and online education programs to measure the quality of virtual learning experiences; financial obligations for online learning; provisions for compromised student populations; and concerted frameworks among state, district, and program policies (Watson et al., 2004). The same concerns expressed in the inaugural report regarding rapid growth and implementation of K-12 online learning programs outpacing appropriate state and federal policy development found a home in each annual report (Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012).

Although each annual report documents a level of growth showing increased numbers of students engaging in full-time and supplemental online programs, the data collection and reporting necessary to provide an actual number of online learners still does not exist across the

nation (Watson et al., 2012). The initial collection and reporting of demographic data regarding online learners focused on state-level online learning programs, although as state policies accommodate disaggregated online and traditional student data collection and as more online learning entities share requested information, a more accurate picture of online learners' demographic characteristics becomes a reality (Watson et al., 2012).

The remainder of this chapter explores the following research questions:

1. What is the nature of blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?
2. Why do traditional school districts of three counties in southwestern Pennsylvania implement blended and online programs?
3. What are the barriers to implementing blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?
4. What are the benefits to implementing blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?

2.1 ONLINE LEARNING

While online learning still only comprises approximately five percent of the total United States' student population in kindergarten through twelfth grade (Watson et al., 2013), the growth since online learning's inception lends credence to this provision for student learning. Starting in 1991 with a private school in California (Rice, 2006), online learning grew with the intent of providing

broader educational opportunities that capitalized on the use of technology to extend learning opportunities for students who would not otherwise have access to a diverse school curriculum, specialized content, or highly qualified teachers (Barbour & Ferdig, 2012; Moore, Dickson-Deane, & Galyen, 2011).

With the variety of instructional strategies that capitalize on technology, providing a clear definition of online learning has been a challenge in the research literature and with practitioners, as commonly misunderstood and inconsistently applied definitions for terms such as *distance education, online learning, hybrid learning, blended learning, e-learning, virtual schools,* and *cyber schools* continue to muddy the research literature (Watson, Murin, Vashaw, Gemin, & Rapp, 2013). Definitions of *online learning* range from general accounts focused on the delivery of content and instruction primarily over the Internet (Oblinger & Oblinger, 2005; Watson & Kalmon, 2005) to disclosing specific exclusions of the definition, such as print-based correspondence education, videocassettes, isolated software programs remiss of an Internet-based instructional component, and television or radio (United States Department of Education, 2010). Realizing that some researchers and practitioners interchangeably use *virtual learning, cyber learning, e-learning* and *distance education* with *online learning* adds to the murky clarity in this emerging field (iNACOL, 2011; Staker & Horn, 2012).

Online learning is "teacher-led education that takes place over the Internet, with the teacher and student separated geographically, using a web-based educational delivery system that includes software to provide a structured learning environment. It may be synchronous (communication in which participants interact in real time, such as online video) or asynchronous (communication separated by time, such as email or online discussion forums). It may be accessed from multiple settings (in school and/or out of school buildings)" (Watson et

al., 2013, p.8). For purposes of this study, *online learning* is a structured, teacher-led course delivered over the Internet where teachers and learners are separated by location and time. Like the longer, previous definition of online learning, this succinct definition identifies the geographic location, provisions for communication among teachers and students, and educational environment in which learning may occur.

Although this definition provides clarity for defining *online learning*, online learning comprises multiple dimensions, including comprehensiveness, reach, type, location, delivery, operational control, type of instruction, served grade levels, and level of interaction between teachers and students and among students that account for the variance among online programs (Watson & Ryan, 2006). Although the multiple combinations of these various dimensions could describe thousands of online programs, four dimensions are essential to defining most programs and are considered when developing state and local online learning policy: comprehensiveness, reach, delivery, and type of instruction (Wicks, 2010). The next section explains these four dimensions of online learning.

2.1.1 Dimensions of Online Learning

Four dimensions are used to describe online programs: comprehensiveness, reach, delivery, and type of instruction (Wicks, 2010).

2.1.1.1 Comprehensiveness

Classifying online learning varies across researchers; however, at the most basic level, there are two common comprehensive classifications of online learning: supplemental programs and full-time programs (Barbour & Ferdig, 2012). When students enroll in traditional physical schools

and elect to register for online courses that augment their traditional courses, these courses are part of a supplemental online learning program (Barbour & Ferdig, 2012). Supplemental programs are sometimes referred to as part-time programs (iNACOL, 2011).

Full-time programs, on the other hand, enroll students into their school and are accountable for student achievement, as reported for No Child Left Behind (Barbour & Ferdig, 2012). What constitutes a full-time online program varies across researchers, for some limit full-time status to school enrollment (Barbour & Ferdig, 2012), while others define it by four or more courses (Ravaglia, 2012).

Beyond the program type, the comprehensiveness of an online program also considers the variety of courses available to learners (Wicks, 2010). Within a supplemental or full-time program, the variety of courses helps to define how comprehensive the program actually is.

2.1.1.2 Reach

In addition to programs' comprehensiveness between fully online and supplemental programs, online learning is defined by the *reach* of its intended or enrolled learners. Restrictive policies and legislative variance across states limit most online programs' reach to three levels: state, multi-district, and district (Watson & Ryan, 2007); however, a few programs operate nationally or even internationally (Wicks, 2010). These levels define the reach of enrollment within programs.

2.1.1.3 Delivery

Capitalizing on the flexibility that online learning supports, instructional delivery of most online programs is done asynchronously, or when instructors and learners work at different times (iNACOL, 2011; Watson & Ryan, 2007; Wicks, 2010). Fewer instructors and learners

communicate synchronously, or in real-time (Archambault & Crippen, 2009; iNACOL, 2011; Watson & Ryan, 2007; Wicks, 2010). Although most programs capitalize on the any-time capabilities by offering courses and programs that focus mainly on asynchronous learning opportunities, some programs mix synchronous and asynchronous practices; very few, however, focus primarily on synchronous learning (Watson & Ryan, 2007).

2.1.1.4 Type of Instruction

Students participate in a full spectrum of learning types ranging from fully online to fully face-to-face (Wicks, 2010). Although online programs previously implemented fully online programs for both full-time and supplemental programs, most current programs combine online and face-to-face instruction to offer blended learning programs (Watson et al., 2013; Wicks, 2010). Blended programs will be discussed later in this chapter.

2.1.1.5 Online Learning Dimensions of Traditional School Districts

Clear accounts of online learning dimensions are absent from the literature. Although many traditional school districts offer online courses, characteristics that describe the comprehensiveness of supplemental programs are not documented. Additionally, because all teachers must be highly qualified in the state where students enroll in courses, the reach of most district-provided online programs extends little, if any at all, beyond the geographic boundaries of their traditional school district (the exception being consortium programs, which will be discussed later in this chapter).

2.1.2 Development of Online Learning

For the last 10 years, national reports regarding online learning assess the level of implementation and the variety of programs being implemented across the United States (Watson et al., 2013). Through online learning's maturation, program types gain clearer definition and experience growth; however, no state provides learners with a full menu of online options (Watson, 2005; Watson et al., 2008; Watson et al., 2009; Watson & Ryan, 2006, 2007; Watson et al., 2010, 2011, 2012, 2013; Watson et al., 2004).

Initial reports of online learning focused on five types of programs: statewide supplemental programs, cyber charter schools, multi-district cyber schools, district-level supplemental programs, and single-district cyberschools (Watson et al., 2004). These overarching program types account for fully-online programs as well as supplemental programs at the state, multi-district, and single-district levels.

Fully online programs at the state and district levels accounted for initial online learning growth across the United States (Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2004); however, as single-district programs grow, fully online programs' contribution to online learning shifted from primarily fully-online programs to offer supplemental courses to students enrolled in other schools (Watson & Ryan, 2007). Although their roles have shifted, the largest fully online programs report the highest amount of growth among fully online programs, indicating that they do not reach a particular capacity and stagnate (Watson et al., 2008).

In an effort to retain their geographic student population, districts in states with significant fully online and blended state virtual schools who are losing students to these educational entities frequently feel the need to provide their own courses (Project Tomorrow, 2009; Watson et al., 2009). Beyond indicating that online learning opportunities exist for

students, specific information about these programs evades the research literature (Watson, 2009). Although these single-district online and blended learning programs account for the fastest-growing categorization of online programs, data suggesting the number of students enrolling in such programs do not exist. A few studies attempting to garner the national perspective offer consistent accounts of single-district online program growth ranging from 46 percent (SREB, 2012) to 56 percent (NCES, 2011) of surveyed districts offering online programs.

2.1.2.1 Documenting Online Learning Growth

Researchers consistently document online learning's growth for school-age children (Cavanaugh, Gillan, Kromney, Hess, & Blomeyer, 2004; Watson, 2005; Watson, Gemin, & Ryan, 2008; Watson, Gemin, Ryan, & Wicks, 2009; Watson, Murin, Vashaw, Gemin, & Rapp, 2010, 2011, 2012, 2013; Watson & Ryan, 2006, 2007; Watson, Winograd, & Kalmon, 2004). Although some researchers provide estimates regarding the number of students engaged in online learning (Horn & Staker, 2011; Watson et al., 2013), the actual number of students learning online is not known. In addition to the lack of data collection programs available across states, outsourcing online learning to multiple providers complicates data collection regarding online learning and student enrollment (Farley & Lare, 2012). Although incomplete, the most valid online enrollment statistics generate from fully online programs. Because state-led online programs enroll full-time students, they serve as both initial and current accounts of documented online learning growth (Watson, 2005; Watson et al., 2004; Watson & Ryan, 2006, 2007).

Although 2007 annual reports substantiated online learning growth of full-time online schools that exceeded the start-up provisions of new programs (Watson & Ryan, 2007), online

learning growth shifted to limit full-time online school growth to new educational entities (Watson et al., 2008). This does not mean that growth dwindled; on the contrary, supplemental programs report substantial growth, by as much as 50 percent through course registrations (Watson et al., 2008). Further discussion regarding supplemental online programs follows in the next section.

Also contributing to increasing numbers of students accessing online programs, non-charter, full-time online programs offered by school districts increasingly offer online options for students (Watson et al., 2008). However, since these programs are not reported separate from students enrolled in traditional learning programs within school districts, exact numbers of students learning online remain unknown.

Most recently, after reviewing online learning program attributes, state policies, and state funding of online schools and courses, Watson et al. (2013) rated online learning in all 50 states and Washington, D.C., regarding online learning activity for elementary school, middle school, and high school children for both fully online and supplemental online learning by assigning each student group one of four ratings: "*available to all students, available to most students, available to some students, or not available"* (p.11).

While 24 states do not offer fully online options to high school students, fewer states fall into this same rating for middle school and elementary school students, 21 and 22 , respectively; indicating that more states offer fully online programs to younger learners than they do high school children (Watson et al., 2013). See *Figure 2. States Providing Fully Online Options for School-Age Children.*

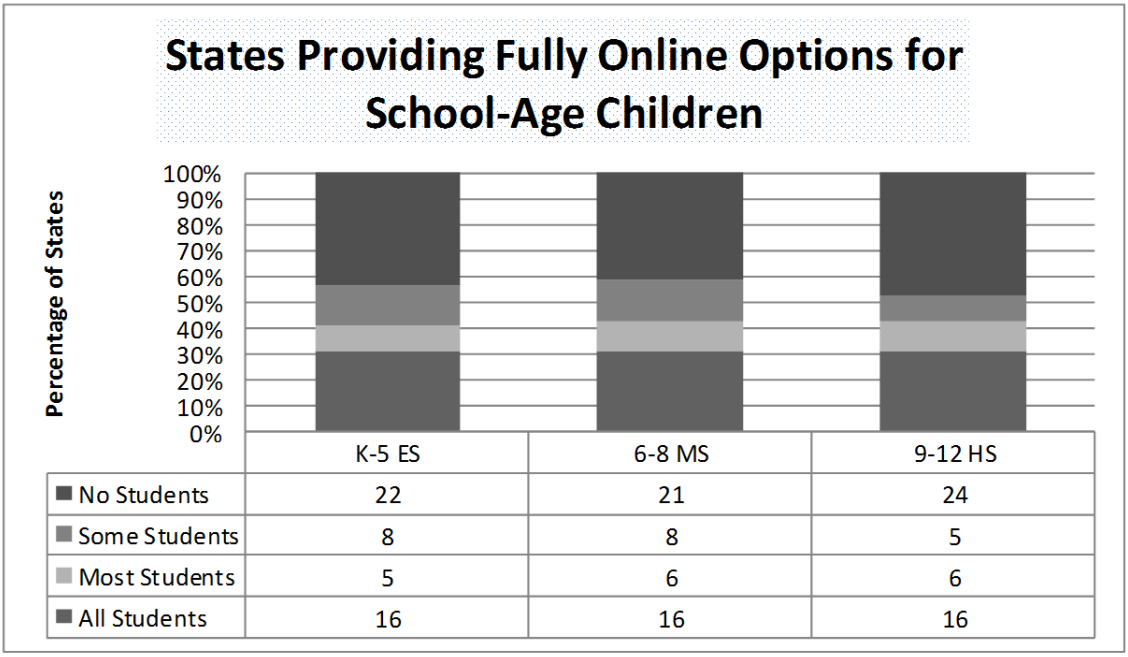


Figure 2. Fully Online Options for School-Age Children Based on Keeping Pace with K-12 Online & Blended Learning: An Annual Review of Policy and Practice (2013)

Although slowing compared to previous years' online learning increases (Watson et al., 2012), student enrollment in online programs increases annually, as it has done for the past 10 years. Of concern, however, is the number of school-age children capitalizing on these online choices remaining small (Watson et al., 2013).

Contributing to the challenge of identifying the online learning student population, inept data collection systems hinder an accurate account of how many students actually participate in online learning opportunities. In attempting to acquire an account of K-12 students participating in online learning, researchers divide reporting into two primary classifications: number of students enrolling in online programs, and the number of students registering for online courses.

Program Enrollment

Program enrollment was discussed in previous sections regarding online learning growth. Students enrolling in fully online programs register as a student in a particular school or program, and all data for these students get attributed to the program or school.

Course Registrations

At the start of the twenty-first century, approximately 45,000 K-12 students participated in an online course; however by 2009, more than three million K-12 students participated in online courses (Horn & Staker, 2011). Although full-time online enrollment in state online schools slowed as the years progressed, these pioneers of online learning continue to serve the education profession by serving as online course providers in 39 states for approximately 450,000 course registrations (Watson et al., 2010). While student enrollment determines fully online programs' population, course registrations measure the size of supplemental online programs (Watson et al., 2008).

Comparisons between full-time and supplemental programs appear at first to favor supplemental program enrollments; however, each program enrollment represents approximately 10 semester course registrations per year (Watson et al., 2008). Although the full-time schools may look smaller at first glance than the supplemental programs, the numbers are not one-to-one comparisons. With this in mind, documented supplemental and full-time online learning programs share approximately the same size ranges (Watson et al., 2008).

Although more states offer fully online programs for elementary schoolchildren, the tables turn when considering supplemental online learning. Supplemental online programs primarily serve high school students and some middle school student populations; however, some school districts are beginning to create online and blended options for elementary students (Watson et al., 2010).

Only three states fail to provide supplemental online options for high school students; however, 19 states neglect to offer supplemental online courses for middle school students, and 45 states fail to do the same for their youngest elementary school-age learners (Watson et al., 2013). See Figure 3. *Fully Online Options for School-Age Children based on Keeping Pace with K-12 Online & Blended Learning: An annual Review of Policy and Practice (2013).*

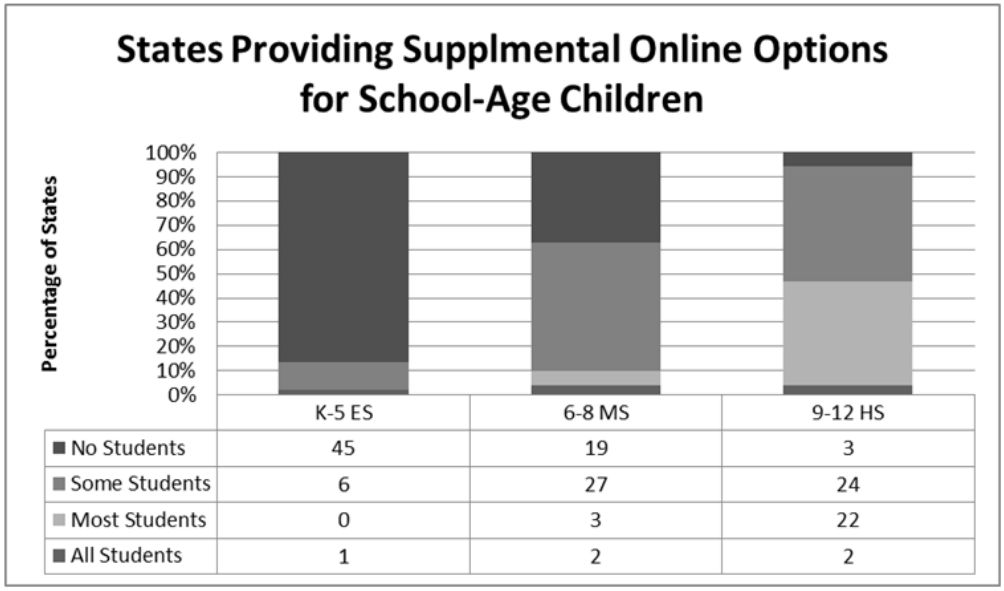


Figure 3. Fully Online Options for School-Age Children based on Keeping Pace with K-12 Online & Blended Learning: An annual Review of Policy and Practice (2013)

Calculating the number of students registering for individual course enrollments, however, presents more of a challenge, for these students enroll in one school (which may be brick-and-mortar, online, or a combination of the two) and may take the online course within their enrolled school or through a selection of courses provided by other schools, programs, or providers. With many single-districts offering supplemental online courses, researchers attempt to garner an accurate picture of these programs. Much like the districts that create and implement them, supplemental programs vary in size, with the majority of programs consisting

of fewer than 1,000 course registrations, and the majority of the smallest supplemental programs (64 percent) registering students for fewer than 500 courses (Watson et al., 2008).

Of the two data collections, students enrolled in online programs provides a more accurate account because this information ties to students' enrolling in schools, as opposed to enrolling in individual courses provided by multiple entities. Therefore, a better representation of students who enroll in fully online programs exists, as compared to data regarding students' individual online course participation. With different data tracking systems operating across states, identifying the number of students enrolled in online programs and courses continues to pose a challenge.

Online Learning Growth in Traditional School Districts

While data limitations continue to plague all areas of online learning, single-district programs represent the least tracked and least understood facet of the online learning spectrum (Watson et al., 2009; Watson et al., 2010, 2011, 2012, 2013). However, as state reporting and data warehouses become increasingly sophisticated, single-district programs could lead the transformation of online learning to report the very data necessary to indicate under what conditions and for which demographics of students online learning best works.

While clarification regarding online learning provisions in school districts has been murky in previous years due to unavailable data and lack of overall reporting, national studies conducted in 2011 by the National Center for Education Statistics (NCES), the California Learning Resource Network (CLRN), the Southern Regional Education Board (SREB), and Evergreen Education Group, started to capture online learning activity within districts to gain a national, state, or local understanding of blended and online learning in these previously unaccounted for programs (Watson et al., 2011).

Approximately half of all school districts offer blended or online learning programs for school-age children (Watson et al., 2010; NCES, 2011). Based on individual data reports, school districts implement a range of programs at the district level to provide options for students, including fully online programs and blended learning programs to provide credit recovery, Advanced Placement courses, elective courses, summer school opportunities, and other courses for a varied curriculum (Watson et al., 2011).

According to the NCES report (2011), over half of responding school districts reported distance education enrollments among their student populations (NCES, 2011; Watson et al., 2012). The challenge in this report is with terminology, such as "distance education," which could include coursework completed using technologies that do not necessarily fall into an online learning category classification (Watson et al., 2012). However, 77 percent of reporting districts indicated that distance education courses primarily used the Internet to deliver content synchronously or asynchronously (NCES, 2011; Watson et al., 2012); indicating that at least these courses would fall in an online learning classification. Extrapolating from this report suggests approximately 1.8 million distance education course enrollments across the nation (NCES, 2011; Watson et al., 2012).

Online learning courses continue to serve teens at higher rates than elementary-aged students (NCES, 2011; Watson et al., 2012, 2013). According to the NCES report (2011), three-fourths of distance education course enrollments were among high school students, with middle schools or junior high schools comprising 10 percent of the reported population, and elementary schools representing less than five percent.

With half of reporting districts documenting 30 or fewer distance education course enrollments, the NCES (2011) report supports Watson et al.'s (2009) claims that single-district

online learning programs typically meet a specific local education agency's needs by offering online learning opportunities for specific populations of students that are typically small in number.

Reports neglect to indicate whether students engage in online learning courses because of scheduling conflicts, or because the course curriculum is not otherwise available. According to a survey of states by the Southern Regional Education Board (2011), 85 percent of states reported that students took online courses because courses were not available in their traditional, brick-and-mortar school districts. This same percentage of schools indicated that students took online courses because even when courses were available to them, there were scheduling conflicts that prevented their efforts (SREB, 2011).

Multi-District Programs

Previously stifled by budget limitations, single districts seek the collective expertise and financial resources of neighboring districts to offer multi-district online learning programs. In fact, for the last five years, consortia programs join single-district programs to comprise most online learning growth among online learning program types (Watson et al., 2013). Consortium online programs, or "next-generation state virtual schools," (p.39), run by multiple school districts, non-profit organizations, or intermediate educational agencies are typically supplemental and funded by the member districts' membership fees. Although limited information about single-district programs is beginning to surface through individual district reports, multi-district programs continue to elude the research base (Watson et al., 2013).

As single-district and consortia online programs continue to grow and as state virtual schools go underfunded or completely unfunded, the relevance of state virtual schools to the

overall current online learning picture becomes less important than they initially were (Watson et al., 2011).

Summary

Regardless of the online learning provider, or the reach of the student body, online learning provisions continue to increase at the state, multi-district, and single-district levels in fully online, supplemental, and blended programs and courses (NCES, 2011; Project Tomorrow, 2009; SREB, 2011; Watson, 2005; Watson et al., 2008; Watson et al., 2009; Watson & Ryan, 2006, 2007; Watson et al., 2010, 2011, 2012, 2013; Watson et al., 2004). Although studies with large district samples are starting to emerge (NCES, 2011; SREB, 2012), few studies comprise the sample-size necessary to garner a clear picture of online learning programs and course enrollments (Watson et al., 2012). The challenge of collecting online learning data continues to be an area of need. Until states invest in systems that collect blended and online learning data on all participants to provide transparent accountability, limited outcomes and conclusions will continue to populate this young research field (Watson et al., 2011).

Much like the data collection systems, policy development and implementation can have a positive or limiting impact on continued online learning program growth. The next section reviews the impact that antiquated or slowly developed policy has regarding online learning.

2.1.2.2 The Impact of Policy Development on Online Programs

Although online learning policy lacks language across states to support online learning options, at least there are provisions in most states to allow, encourage, or even require students enrollment in online learning. Implementation of online learning outpaced the development and application of online learning policy in states. Just seven years ago, although state-wide online

programs operated in 50 percent of all states, an equal number of states were without state policies for online learning (Watson & Ryan, 2006).

Online learning opportunities and the number of students capitalizing on online learning options varies across states, and policy that supports or hinders online learning greatly impacts these statistics. For example, some states have open enrollment for any school-age child; however, other states place restrictions by capping the number of students each teacher can manage, restricting funding only for students who were enrolled in online education the previous school year, or limiting students to a particular number of online courses.

At the other end of the spectrum, some states require students to complete online learning prior to graduation (Barbour, 2012). Four states, including Alabama, Florida, Michigan, and Virginia, have made online learning a graduation requirement for high school students, with North Carolina and Arkansas positioned to follow suit (Watson et al., 2013). Additional states (e.g., West Virginia, New Mexico, and Massachusetts) encourage, but fall short of requiring, online learning (Watson et al., 2013). The fact that some states require online learning prior to graduation sets up a digital divide tied to geographic location.

2.1.2.3 Equity & Access

While some states address digital inequities regarding access to technology, few address access to online courses with regard to family income or students' specific needs (Watson et al., 2004). States require compliance with federal nondiscrimination laws; however, this mandate is not specific to online learning (Watson et al., 2004). Accounting for income inequities, some states, including Pennsylvania, require cyber charter schools to provide computers and Internet access to each of its students (Watson et al., 2004). Although migrant and homeless students could benefit from the consistency that online learning could provide, few states strategically plan or

provide online learning opportunities for these highly mobile student populations (Watson et al., 2004).

Among concerns of equity and access to online learning, because demographic data are scant, stakeholders cannot accurately determine whether students from all geographic regions, with different needs equitably have access and participate in online learning programs (Watson, 2005). While online courses may be available to many students, lack of high-speed Internet access prevents some students from entering the online learning realm (Watson et al, 2008).

Few individual districts have the financial means to sustain fully online programs (Watson et al., 2008). Funding regulations facilitate or hinder equity and access to online learning opportunities for all students (Watson et al., 2008). With supplemental programs, funding often does not come to programs until after students successfully complete courses or depends upon a particular date in time; however, with this flexible learning program comes flexible course starting and ending dates, so policies need to ensure that funding accurately supports the course enrollments that students elect to take (Watson et al., 2008).

Additionally, capping student course enrollments or FTE reimbursements stifles learning opportunities for all students and directly impacts program offerings (Watson et al., 2008). States experiencing the most online learning growth allow students to participate in online learning across district boundaries, which allows districts, consortia and other providers to capitalize on economies of scale to develop, implement, and support online learning for all students (Watson et al., 2008).

States wanting to operate fully online programs that serve students statewide operate under open enrollment policies (Watson et al., 2008). Initially intended to serve students from

neighboring districts, online learning changed how open enrollment applies by providing an opportunity to serve students from across the state (Watson et al., 2008).

Controversy regarding school funding extends beyond open enrollment. When funding varies by district, stakeholders question the proper funding level for online learning programs that educate children from these various residential school districts (Watson et al., 2008). Online learning policy or lack there-of continues to compromise online program development. At least minimally, policies to address who decides whether students can leave residential schools to attend online programs should be in place (Watson et al., 2008).

The nature of online learning considers more than program descriptions, student enrollment, program growth, and policy development. This chapter now shifts from the logistical descriptions to the characteristics of teachers and students who participate in online learning.

2.1.2.4 Teachers Who Provide Online Instruction

Not all teachers are suited for providing instruction in an online environment (Palloff & Pratt, 2001; Smith, 2005); however, there are similarities among teachers who choose this medium to engage students in learning various content areas (Roblyer & McKenzie, 2000). Teachers who provide online instruction have taken an online course (Oliver et al., 2009), report their technology skills as good or excellent (Oliver et al., 2009); are more likely than traditional teachers to have a master's degree (Archambault & Crippen, 2009); and replace face-to-face instruction with online content when teaching in traditional and online settings (Archambault & Crippen, 2009).

The technology skills necessary for teachers who provide online instruction receive mixed reviews from being experts in technology use (Haglund, 2012) to comfortable using

technology and willing to continually learn as technology continues to develop (Pape et al., 2012).

Successful online instructors share some of the same qualities as traditional classroom teachers (Roblyer & McKenzie, 2000), which includes good communication skills and questioning strategies (Cyrs, 1997; Pape et al., 2012; Roblyer & McKenzie, 2000); mastery of their subject matter (Pape et al., 2012); effective organization skills (Roblyer & McKenzie, 2000); planning courses that capitalize on distance education strengths (Cyrs, 1997; Pape et al., 2012); verbal and nonverbal presentation skills specific to distance learning situations (Cyrs, 1997); and involving and coordinating student activities among several resources (Cyrs, 1997).

While many agree that online learning has reshaped and will continue to transform education, this cannot be accomplished without shifting the role of the classroom teacher (Vornberg & Maris, 2003). Two roles emerge in the research literature regarding teachers who provide online instruction: authors of online content (Archambault & Crippen, 2009; Barbour & Ferdig, 2012; Davis, 2007) and facilitators of student learning (Herring, 2004; Kim & Thompson, 2012; Richardson & Swan, 2012).

In addition to serving as mentors and advocating on students' behalf, facilitators proctor the administration of assessments, serve as on-site mentors (Barbour, 2012; Davis, 2007), and mentor students taking online courses (Barbour & Ferdig, 2012). Although the facilitator could be the most important role among teacher, designer and facilitator, it is the most often neglected role when schools implement blended and online learning opportunities (Barbour & Ferdig, 2012).

2.1.2.5 Students Who Participate in Online Learning

Cavanaugh, Barbour, and Clark (2009) identify the need to determine the necessary characteristics for adolescents to be successful in online learning environments. Although initial online programs envisioned a more cost-effective, consistent educational model for rural and historically underperforming children, today's online learning is equally likely to need flexibility and self-paced content as the students who need online learning for credit recovery (Wood, 2005).

Some of the flexibility that lures students to online learning actually stifles their self-paced learning opportunity. For example, while online courses are marketed for students who seek increased employment opportunities, students who spend fewer hours working outside of the school environment are more successful in the online environment (Rice, 2006).

Researchers continue to seek the characteristics of students that lead to online learning success. According to Roblyer & Marshal (2003), there are four main factors that predict students' success in online learning environments: achievement and self-esteem beliefs, responsibility and risk-taking, technology skills and access, and organization and self-regulation. Students who are successful in online programs embody similar characteristics: self-directed, independent learners (Reid et al, 2009), highly motivated (Reid et al., 2009), time management skills (Reid et al., 2009), willing to ask questions (Reid et al., 2009), strong family support (Reid et al., 2009), and are not dependent on face-to-face interaction (Reid et al., 2009). Many argue that these characteristics embody successful students regardless of whether they participate in traditional or online learning environments.

Attempts to collect demographic information from online program providers continue to be a challenge (Watson & Ryan, 2007). Although terminology variance accounts for part of the

data collection challenge, online programs fail to collect demographic information making it impossible for researchers to describe the student population engaging in online learning programs (Watson & Ryan, 2007). Even the most commonly collected demographic information, gender, was only reported by 60 percent of respondents to the annual *Keeping Pace* (2007) survey. For this same survey, fewer than 50 percent of respondents reported collecting ethnicity of online learners; 43 percent collect eligibility for free or reduced-lunch; 36 percent identify Limited English Proficiency (Watson & Ryan, 2007). Missing from this survey report was information regarding students with individualized education programs; however, only 27 percent could provide data identifying their students receiving gifted and talented services (Watson & Ryan, 2007). Nearly one-third of respondents collect no demographic data for online learners (Watson & Ryan, 2007). Watson and Ryan (2007) warn that because of the limited response percentage and sample size, extrapolations to national online student numbers cannot be made; however, enough information supports the notion that online learning is not limited to middle class, Caucasian students.

While initial online programs targeted the lowest achieving students and the highest achieving students, the majority of high school program respondents indicate that fewer than 15 percent of course registrations are for Advanced Placement courses, and less than 10 percent of respondents attributed greater than 45 percent of course registrations to be designated as Advanced Placement (Watson & Ryan, 2007). Accounting for credit recovery courses proves to be challenging, for online schools do not know if students enroll in online courses for the purpose of recovering credit (Watson & Ryan, 2007).

With data collection and tracking limitations, supplemental programs with students from multiple schools, fail to monitor student demographics and reasons they take online courses

(Watson & Ryan, 2007). Tracking Advanced Placement course registration associates with the course title, classifying every enrolled student as an Advanced Placement student; however, this same designation cannot extend to students enrolled in credit recovery courses unless enrolling schools communicate this purpose to an online provider that documents the information (Watson & Ryan, 2007). Supplemental programs offering summer online credit recovery courses serve as the exception to this scenario (Watson & Ryan, 2007). Limited student demographic data exist beyond credit recovery and Advanced Placement course registrations (Watson & Ryan, 2007).

Data are starting to emerge to capture the profile of students participating in online learning. For the first time since 2004, the annual *Keeping Pace* (2011) report was able to determine with some level of accuracy the demographics of online students (Watson et al., 2011). Based on 175 responses from 139 different programs, approximately 55 percent reported all requested demographic data to describe programs serving almost 500,000 full-time and part-time students (Watson et al., 2011). Of the reported total number of students served through online learning programs, respondents shared demographic data for 39 percent of this online learning population (Watson et al., 2011). Based on this online learning profile, concerns about equitable access to online courses are founded (Watson et al., 2011).

As previously reported, when compared with the national school-age student population, an overrepresentation of female students exists in online learning (Watson et al., 2011). While male students represent a greater portion of the national K-12 student population, female students comprise 55 percent of the online learning student population (Watson et al., 2011).

Watson et al. (2011) describe ethnic comparisons between the online learning student population and the national student population as “significant, but not dramatic” (p.35).

Although Asian, Hispanic, and Black students are underrepresented, Native American and White students are overrepresented (Watson et al., 2011).

The national student population of students receiving English as a Second Language services (11 percent) is approximately five times the percentage of online learners receiving this same service (2.3 percent) (Watson et al., 2011). Only 6.2 percent of students with individualized education programs (IEPs) engage in online learning; the national population of students with IEPs is 13.2 percent (Watson et al., 2011). While 45 percent of school-age children participate in the free or reduced-price school lunch program, the demographics of online learners includes only 21.7 percent (Watson et al., 2011). Historically underperforming children do not access online programs at rates comparable to the national population (Watson et al., 2011).

Concerns about online learning merely replicating the education systems inequities that plague too many brick-and-mortar schools appear justified, at least for these historically underperforming student populations (Watson et al., 2011). At its inception, online learning programs cited low achieving student populations as those positioned to gain the most from this educational choice (Watson et al., 2004); however, it appears that they are not accessing these opportunities at rates equal to the overall student population.

Accurately portraying the demographics of students participating in online learning faces two challenges: first, common definitions for the variety of online programs prevent comparisons among programs, states, or program types; secondly, programs run within schools do not have the same data reporting requirements that the overall school requirements dictate (Glick, 2009). Of the variety of online learning programs, fully online schools are more likely to report demographic data than supplemental online programs are (Glick, 2009).

Teachers indicate that the differences between online students and traditional students are online students are more prone to procrastination, increased opportunity for plagiarism, increased issues when dealing with technical problems (McFarlane, 2011), and misperception that online courses are easier than traditional courses (Archambault & Crippen, 2009).

Factors that predict students' success in online learning include: achievement and self-esteem beliefs, responsibility and risk-taking, technology skills and access, and organization and self-regulation (Reid et al., 2009; Roblyer & Marshal, 2003); being highly motivated (Reid et al., 2009); willing to ask questions (Reid et al., 2009); having strong family support (Reid, et al., 2009); and independence from face-to-face instruction (Reid et al., 2009).

While researchers struggle to collect accurate demographic data regarding online learners, most still document the goal of determining equitable access among all student populations and ensuring that quality programs operate to increase student achievement (Glick, 2009).

2.1.3 Benefits of Online Learning

Researchers indicate several instructional, economic, political, and systemic benefits for students, teachers, administrators, and school systems that participate in or provide online learning opportunities.

Benefit Characteristic	Supporting Research
Increased student motivation	Cavanaugh, Barbour, & Clark, 2009
Expanded educational access	Berman & Tinker, 1997 Cavanagh, Barbour, & Clark, 2009 Cavanaugh & Clark, 2007 Reid et al., 2009 Rice, 2006

High-quality learning experiences	Cavanaugh et al., 2009
Improved student outcome	Barbour & Reeves, 2009 Cavanaugh et al., 2009
Increased individualized interaction between teachers and students	Archambault & Crippen, 2009 Haglund, 2012 McFarlane, 2011
Flexible learning time & location	Barbour & Reeves, 2009 Oliver et al., 2009 Rice, 2006
Student ownership of learning	Oliver et al., 2009
Decreased classroom management issues for teachers	Archambault & Crippen, 2009 McFarlane, 2011
Meeting graduation requirements sooner	Niemiec & Otte, 2010
Extended course content	Tubbs et al., 2012
Self-paced learning	Kim & Thompson, 2012 Richardson & Swan, 2012
Time for student reflection prior to responding	Richardson & Swan, 2012
Accommodations for credit deficiencies	Cavanaugh & Clark, 2007 Reid et al., 2009 Rice, 2006
Reduced or eliminated discrimination	McFarlane, 2011

Figure 4. Instructional Benefits of Online Learning

Benefit Characteristic	**Supporting Research**
Administrative efficiency	Barbour & Reeves, 2009 Cavanaugh et al., 2009
Accommodated enrollment gains	Niemiec & Otte, 2010
Decreased assessment costs	Tucker, 2012
Reduction in revenue loss	McFarlane, 2011 Reid et al., 2009
Decreased district per pupil costs	Reid et al., 2009
Teachers stay home with children	Archambault & Crippen, 2009

Figure 5. Economic Benefits of Online Learning

Benefit Characteristic	**Supporting Research**
Enhanced reputation & competitive edge	Niemiec & Otte, 2010
Expanded educational access	Berman & Tinker, 1997 Cavanaugh et al., 2009 Cavanaugh & Clark, 2007 Reid et al., 2009 Rice, 2006
Educational choices for families	Barbour & Reeves, 2007

	Cavanaugh et al., 2009
Options for crowded schools	Cavanaugh & Clark, 2007
Increased highly qualified staff	Cavanaugh & Clark, 2007 Reid et al., 209

Figure 6. Political and Systemic Benefits of Online Learning.

Instructional benefits include increases to student motivation, high-quality learning opportunities for students, improved student outcomes and skills, increased individualized interaction between teachers and students, flexible learning time and location, student ownership for learning, decreased classroom management issues for teachers, meeting graduation requirements sooner, extended course content, self-paced learning, time for student reflection prior to responding, accommodations for credit deficiencies, and an elimination or reduction of discrimination.

Administrative efficiency, accommodated enrollment gains, decreased assessment costs, reduction in revenue loss, and decreased district per pupil costs provide economic benefits for schools the provide online learning opportunities. Teachers who provide online instruction from their homes experience the economic benefit of not needing to secure child care for their own children.

Politically, schools providing online learning options for students gain a competitive edge and positive reputation. *See Figure 6. Political and Systemic Benefits of Online Learning*.

Systemically, online schools provide expanded educational access, provide educational choices for families, option for crowded schools, and a reduction in non-highly qualified staff. See *Figure 6. Political and Systemic Benefits of Online Learning*.

2.1.4 Challenges of Online Programs

While most of the benefits of online learning can be classified as instructional in nature, most of the challenges of online learning focus primarily on resource challenges that educators face (Archambault & Crippen, 2009; Barbour & Ferdig, 2012; Cavanaugh et al., 2009; Hawkins & Macmillan, 1993; Herring, 2004). Technology access for schools and students, accreditation of online courses and programs, professional learning for existing staff members, and support for struggling students are resource challenges that online programs face.

Challenge Characteristic	Supporting Research
Technology access	Cavanaugh et al., 2009 Watson et al., 2008
Accreditation of online courses	Cavanaugh et al., 2009
Professional learning for existing staff members	Archambault & Crippen, 2009 Barbour & Ferdig, 2012 Hawkins & Macmillan, 1993 Herring, 2004
Support programs for struggling students	Cavanaugh et al., 2009 Rice, 2006

Figure 7. Resource Challenges for Online Programs.

Although emerging, a focused research base regarding online learning for school-aged learners continues to be limited in quantity and quality of studies (Barbour, 2011; Barbour, 2012; Barbour & Reeves, 2008; Rice, 2006). One concern among educators is that due to the scarcity of research available for K-12 student populations (Rice, 2006), online learning opportunities for elementary and secondary school students may be compromised by adult learning research being inappropriately applied. Perhaps this accounts for the instructional challenges that exist: student readiness and retention in online courses (Cavanaugh et al., 2009; Reid et al., 2009; SREB, 2011), students' limited technology skills (SREB, 2011), difficulty of online courses (Oliver et al., 2009; SREB, 2011), increased student-to-teacher ratios (Archambault & Crippen, 2009), and

the potential for courses to be more assignment-driven than learning and content-driven (Oliver et al., 2009).

Challenge Characteristics	Supporting Research
Student readiness & retention	Cavanaugh et al., 2009 Reid et al., 2009 SREB, 2011
Students' limited technology skills	SREB, 2011
Difficulty of online courses	Oliver et al., 2009 SREB, 2011
Increased student-teacher ratios	Archambault & Crippen, 2009
Course content focus	Oliver et al., 2009

Figure 8. Instructional Challenges of Online Learning.

2.1.5 Summary

Online learning opportunities continue to increase in program enrollments, course registrations, and the variety of programs being developed and implemented. Questions about access to these online learning provisions for all students, regardless of demographics and zip code continue to go unanswered; however, based on the limited information available, geographic location continues to determine the availability of online learning for school-age learners.

Perhaps school-age children's greatest access to online resources still takes place in traditional school districts. Recent national surveys (Watson et al., 2012, 2013) attribute the majority of online growth to blended learning in traditional school districts. The next sections provide an overview of blended learning, the models of blended learning commonly implemented, and a theoretical framework for both blended and online learning.

2.2 BLENDED LEARNING

As online learning opportunities increased and began to substantiate that online learning is at least as effective as traditional learning (Cavanaugh et al., 2004; Palczewski et al., 2012; United States Department of Education, 2009), schools started to offer and experience similar results with blended learning opportunities as part of their core programming for all students (Kafer, 2013; Matheos, Daniel, & McCalla, 2005; Staker, n.d.; Watson et al., 2011, 2012, 2013). The prevalence of blended learning opportunities in traditional schools has become so customary that Watson et al. (2011) crowned blended learning created by individual school districts as the fastest-growing and largest category of online learning.

While many challenge online learning's lack of physical, face-to-face instruction and learning, there is less resistance to blended learning, which marries the best of both worlds by capitalizing on what digital natives seek in learning experiences and providing the necessary supports and learning opportunities of traditional learning environments (Niemiec & Otte, 2010; Rudi, 2012; Tucker, 2012). The focus of literature regarding online learning seems to hone on the technology used to deliver course content. With blended learning, however, the focus shifts to honor teachers' face-to-face interactions with students (Tucker, 2012).

Just as stakeholders struggle to develop definitions for online learning and its associated programs to accurately portray each term, defining blended learning proves to be at least as difficult (Watson et al., 2013). Barbour and Ferdig (2012) define blended learning as something that "occurs when students are enrolled in a brick-and-mortar school but their teachers make use of online resources as part of their schooling" (p.56); however, this definition could apply to merely using technology in the classroom.

The International Association for K-12 Online Learning (iNACOL) defines blended learning by program or by course; includes clarification that it combines online and face-to-face instruction, which is enhanced by a learning management system; and values the teacher as a facilitator of learning and increased engagement among students, between student and content, and between student and instructor (iNACOL, 2010; Watson et al., 2010).

Horn and Staker (2012) define blended learning as "a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path, and/or pace and at least in part at a supervised brick-and-mortar location away from home" (p.4). By adding "content and instruction" to this definition, practitioners distinguish between online learning and merely including Internet resources as extensions of traditional learning environments (Staker & Horn, 2012).

Watson et al. (2012) documented the need to expand on this blended learning definition to include a component of data collection and use of blended learning to personalize and improve learning for students by listing three components of a blended learning program to include significant online content delivered through a learning management system that capitalizes on students' controlling time, place, path or pace; a "significant, supervised, onsite component that includes face-to-face instruction or mentoring" (p.18); and data captured through a technology system facilitating teachers' ability to personalize each student's learning. Although Watson et al. (2012) identify the need for blended programs to capture data that facilitate teachers' personalization of student learning, most blended programs fail to report such data (Matheos, Daniel, & McCalla, 2005; Watson et al., 2013).

The challenge of defining blended learning is the classification of schools, programs, and classrooms that incorporate digital resources, but do not meet all components of the blended

learning definition (Watson et al., 2013); however, clearly defining the tipping point from technology integration to blended learning continues to elude this emerging research base. For purposes of this study, a blended course is a structured course that combines online learning and traditional, face-to-face learning with some student control over time, place, path, and/or pace.

2.2.1 Blended Learning Models

Identifying and clearly defining the models of blended learning continues to evolve. Original classifications of blended-learning included seven models (Horn & Staker, 2011; Tucker, 2012); however, because of overlapping definitions, more recent accounts broaden definitions to include four models: rotation, flex, self-blend, and enriched-virtual (Kafer, 2013; Staker & Horn, 2012). Bailey & Martin (2013) further simplify by identifying two primary models of blended learning: rotation and flex; however, most continue to reference at least four models of blended learning (Staker & Horn, 2012; Watson et al., 2012, 2013).

2.2.1.1 Rotation Models

A rotation blended learning model is defined as "a program in which within a given course or subject (e.g., math), students rotate on *a fixed schedule or at the teacher's discretion* between learning modalities, at least one of which is online learning. Other modalities might include activities such as small-group or full-class instruction, group projects, individual tutoring, and pencil-and-paper assignments" (Staker & Horn, 2012, p.8). In a blended learning rotation model, students shift between traditional face-to-face, synchronous instruction and online content delivery in their home, a computer lab, or in a classroom (Horn & Staker, 2011; Kafer, 2013; Tucker, 2012).

Within the rotation model classification, four rotation models describe common implementation of this blended-learning provision: Station Rotation, Lab Rotation, Flipped Classroom, and Individual Rotation (Staker & Horn, 2012). Concerns about disconnected online and face-to-face learning and continued reliance on cohort-based progression leads to some implementing Station-Rotation models of blended learning (Bailey & Martin, 2013).

Station Rotation

The rotation model is described in the literature by the physical location of the technology, either in a lab or in a classroom. While students receive customized assignments in individual-rotation models, learners participating in a station-rotation blended learning model engage in all stations within the classroom (Staker & Horn, 2012).

Lab Rotation

Because their rotations encompass more than just a one classroom, the lab-rotation model differs from the station-rotation model (Staker & Horn, 2012). Students access online content in a computer lab for one portion of their instructional course, and access additional course content and instruction in various locations and classrooms across a particular school campus (Kim & Thompson, 2012; Staker & Horn, 2012).

Flipped Classroom

One model of blended learning gaining popularity across educational entities, middle schools and high schools, in particular (Fulton, 2012; Tucker, 2012), is referred to as the *Flipped Classroom* learning model. In a flipped classroom, teachers provide resources (typically vendor-created, or teacher-created videos) for students to access content that is typically delivered through direct instruction outside of class time (Staker & Horn, 2012). The focus in a flipped

classroom shifts from one that is teaching-focused to one that is learning-focused (Bergmann & Sams, 2012). By engaging in the direct instruction portion of lessons outside of class time, face-to-face time between teachers and students can be utilized to answer questions, provide remediation, and offer targeted instruction to groups of students based on identified learning needs (Bergmann & Sams, 2012).

These first three rotation models closely resemble learning models implemented in traditional school districts. The last rotation model, Individual Rotation, as well as the remaining blended learning models differ from the other three blended learning rotation models by shifting decisions and ownership of learning from teacher-directed to learning-decided.

Individual Rotation

This blended learning rotation model provides students with individually customized schedules among different learning modalities, of which at least one is online learning (Staker & Horn, 2012). While the previous rotation models require students to access all stations or modalities, the individual-rotation model has no such requirement, and students access only the stations or modalities that meet their learning needs (Staker & Horn, 2012).

2.2.1.2 Flex Model

While rotation models are more common for elementary school learners, flex models are more prominent at the secondary level (Bailey & Martin, 2013). A flex blended learning model is defined as "a program in which content and instruction are delivered primarily by the Internet, students move on *an individually customized, fluid schedule* among learning modalities, and the teacher-of-record is on-site" (Staker & Horn, 2012, p.12). A flex model is more asynchronous

and delivers an online curriculum typically in a computer lab; on-site teachers provide tutoring and small-group instructional support to blended learning students (Kafer, 2013).

The flex blended learning model features a learning management interface that delivers most of the curricula, and teachers provide on-site support on an as-needed basis through tutoring and small-group sessions (Tucker, 2012; Staker, n.d.; Staker & Horn, 2012). Credit-recovery and dropout-prevention programs typically implement flex models (Horn & Staker, 2011).

2.2.1.3 Self-Blend Model

A Self-blend model "describes a scenario in which students choose to take one or more courses entirely online to supplement their traditional courses and the teacher-of-record is the online teacher" (Staker & Horn, 2012, p.14). Students participate in online courses either at the school campus or from their homes (Staker & Horn, 2012). As described by Kafer (2013), a self-blend model provides traditional courses at school, and students select online courses to complete at home. Although this initial definition suggests that the learners select the supplemental courses, Christensen et al. (2013) revised this definition of self-blend, which misconstrued that students selected the online courses to supplement and blend when in reality someone else made that decision.

2.2.1.4 Enriched-Virtual Model

Enriched-Virtual model describes a "whole-school experience in which within each course (e.g., math), students divide their time between attending a brick-and-mortar campus and learning remotely using online delivery of content and instruction" (Staker & Horn, 2012, p.15). Because students do not attend traditional classrooms on a regular basis, this model differs from the

flipped classroom model (Staker & Horn, 2012). An enriched-virtual model allows students to complete online courses at home, supported by face-to-face teachers, as needed by students (Kafer, 2013).

2.2.1.5 Previously Included Blended Learning Models

Initially, Horn and Staker (2011) included two additional blended learning models: a face-to-face driver model and an online-lab model. In a face-to-face blended learning model, teachers supplement instruction by delivering most of the curricula and decide which online curricula and when to deploy it for students on a case-by-case basis; students typically access online in the back of a physical brick-and-mortar classroom (Tucker, 2012; Staker, n.d.). The goal for this blended learning program is for students to transition beyond using online instruction for remediation purposes to provide an extension of classroom curricula that capitalizes on Web 2.0 tools and technology resources beyond the classroom walls (Tucker, 2012). Because the face-to-face online driver model differs little from the blended learning rotation and flex models, Staker and Horn (2012) eliminated the face-to-face driver model from the blended learning model taxonomy.

The second blended learning model removed from the taxonomy was the online-lab model (Staker & Horn, 2012). The online-lab model describes a program that relies on an online learning management system to deliver course curriculum, but the resources are provided in a brick-and-mortar lab environment. While teachers may provide instruction virtually, paraprofessionals typically supervise the computer labs. Students taking online classes in an online-lab blended learning model typically engage in traditional coursework that follows a block schedule (Staker, n.d.; Tucker, 2012).

As mentioned in the previous online learning section, as programs grow so do the models of implementation. Although the blended learning models share an online learning component and a face-to-face teacher resource, the models vary in the degree to which students own their learning. The following section provides some of the benefits of blended learning.

2.2.2 Benefits of Blended Learning

Although blended learning benefits gain support in the literature, scant empirical evidence to support these claims exits (Matheos, Daniel, & McCalla, 2005). Blended learning promises increased access to content and extended time for personalized learning (Bailey et al., 2013; Staker & Horn, 2012). Open educational resources available through blended learning decrease the resource divide of impoverished and resource-restricted areas (Larson & Murray, 2008). Blended learning presents opportunities for cost savings by accommodating teacher shortages, providing open educational resources to students negating the need to purchase costly textbooks, and depending on the blended learning model, requiring fewer staff members to provide instruction for students (Kafer, 2013; Horn & Staker, 2011). Increased interaction between students and classroom teachers and among students are among the greatest blended learning benefits (Bergmann & Sams, 2012). Beyond the classroom, evidence suggests opportunities to improve teacher collaboration, encourage differentiated staff assignments, and foster timely professional development opportunities focused on teaching and learning (Bailey et al., 2013). *See Figure 9. Benefits of Blended Learning.*

Blended Learning Benefit	Supporting Research
Increased access to digital content	Bailey et al., 2013; Larson & Murray, 2008; Staker & Horn, 2012
Increased student and teacher interaction	Bergmann & Sams, 2012
Cost Savings	Kafer, 2013; Horn & Staker, 2011

Addresses teacher shortages	Bailey et al., 2013; Kafer, 2013; Horn & Staker, 2011
Decreased staffing needs	Kafer, 2013; Horn & Staker, 2011
Increased teacher collaboration	Bailey et al., 2013
Provide differentiated professional development	Bailey et al., 2013

Figure 9. Benefits of Blended Learning

2.2.3 Challenges of Blended Learning

Just as online learning in general is challenged by resource restrictions, so is blended learning. These barriers include the resources of limited research focused on K-12 blended learning, geographic access limitations, time to develop blended content, limitations of pre-service administrative programs omitting technology leadership, and professional learning for in-service teachers faced with the same pre-service preparation limitations. Students' access to blended learning continues to be determined by their residential zip code (Watson et al., 2013), and of those who can learn under blended learning provisions, their voices remain omitted from the literature base of this emerging field (Bernatek, Cohen, Hanlon, & Wilka, 2012; Matheos, Daniel, & McCalla, 2005). Students' voices are not the only ones eliminated from the research literature, for even less information documents teaching practices and leadership capacities necessary for effective blended learning opportunities (Bernatek et al., 2012; Kim & Thompson, 2012).

When implementing blended learning in traditional school districts, those charged with providing instruction online have not necessarily participated in college coursework that previously prepared them for teaching in an online or blended learning environment. Professional learning opportunities for current teaching staff members are left to school leaders who similarly have little or no formal online and blended learning background. The barriers are

not exclusive to those with limited online learning background. Teachers who experienced these courses might consider what they have experienced as effective online instruction; however, because not all blended learning courses are created equal, these teachers will need exposure to learning communities that focus on collaborative learning and the impact of engagement in effective online learning courses (Pape, 2012). In addition to learning how to teach in an online learning environment, teachers need time to develop online content (Quilici, 2012). See *Figure 10. Challenges of Blended Learning*.

Challenges of Blended Learning	**Supporting Literature**
Limited research	Bernatek et al., 2012; Matheos, Daniel, & McCalla, 2005; Watson et al., 2013
Geographic limitations	Bernatek et al., 2012; Matheos, Daniel, & McCalla, 2005; Watson et al., 2013
Time to develop blended content	Quilici, 2012
Limitations of pre-service programs for administrators that neglect technology leadership	Bernatek et al., 2012; Creighton, 2003; Pape, 2012
Extensive professional development needs of existing staff members	Bernatek et al., 2012; Kim & Thompson, 2012; Pape, 2012; Quilici, 2012

Figure 10. Challenges of Blended Learning

2.2.4 Summary

While blended learning in school districts continues to be the fastest-growing population within the larger online learning classification system, most blended learning programs are excluded from national reports because they are not available to all students across the states and most states do not collect data at the school-level to identify blended learning courses (Watson et al., 2013). Differing slightly from online learning, blended learning success is attributed not to the technology used to extend learning beyond the classroom, but through combining these resources with teachers' expertise and support (Palczewski et al., 2012). Although promising, research

confirming the effectiveness of blended or online learning for school-age children is scant (Kafer, 2013). The next section will address some of the resources that traditional school districts must consider when implementing blended and online learning.

2.3 RESOURCES TO IMPLEMENT BLENDED & ONLINELEARNING

Extending learning opportunities into the blended and online realm cannot be done without expanding the resources to support it. In addition to facility upgrades to accommodate additional technology infrastructure and financial contributions to secure appropriate technology hardware, software, and learning management system access, the investments in learning for teachers, administrators and students require appropriate resources to support blended and online learning opportunities.

The primary goal of educational institutions is to increase student achievement. Most concur that teachers and school leaders have the greatest impact on student learning, and they further agree that professional learning promises the greatest impact on teachers' and school leaders' instructional and leadership expertise (Mizell, 2010; Smith, 2010). Because most school districts are expanding educational provisions to offer blended learning opportunities with existing staff members, professional learning for teachers and administrators must meet the needs of these digital immigrants.

This section discusses the following resources necessary for blended and online program implementation: professional learning, administrative support, technology, curriculum development, funding, and policy. See *Figure 11. Blended and Online Learning Resources*.

Resource	Supporting Literature
Professional learning	Archambault & Crippen, 2009; Cavanaugh, Barbour, & Clark, 2009; Herring, 2004; Lowes, 2007; Oliver et al., 2009; Pape, 2007; Reid et al., 2009; Rice, 2006; Watson & Gemin, 2009
Administrative support	Cate & O'Hare, 2007; Creighton, 2003; Davis & Rose, 2007; Hallinger & Heck, 1998; iNACOL, 2007; Kowch, 2009; Marzano, Waters, & McNulty, 2005; Oliver et al., 2010; Schrum et al., 2011
Technology	Bailey et al., 2013; Creighton, 2003; Ferdig, 2009; Freidhoff, 2009; Niemiec & Otte, 2010; Watson et al., 2010
Curriculum	Watson, 2005; Watson et al., 2004; Watson & Ryan, 2007
Funding	Cavanaugh, 2009; Kennedy & Soifer, 2013; Watson, 2004, 2005; Watson & Ryan, 2006; Watson et al., 2011
Policy	Kafer, 2013; Watson, 2005; Watson et al., 2008, 2013

Figure 11. Blended and Online Learning Resources

2.3.1 Professional Learning for K-12 Educators Who Provide Blended and Online Instruction

With the increasing number of traditional schools developing and implementing blended learning programs, professional learning gains unprecedented focus, for teachers currently employed in traditional schools had little or no online learning experience or even courses regarding technology integration during their pre-service programs (Archambault & Crippen, 2009; Pape, 2007). Practitioners are equally challenged by a limited research base regarding the benefits of professional learning of educators who provide online learning (Smith et al., 2005; Kennedy, 2013; Rice, 2009). Although increasing, attention to instructors' professional learning needs continues to be negligible (Archambault & Crippen, 2009; Cavanaugh, Barbour, & Clark, 2009).

Practitioners seeking the credentials, characteristics, and pre-service preparation programs recommended for teachers who provide blended or online instruction find that little attention has been given to this area (Archambault & Crippen, 2009; Cavanaugh, Barbour, & Clark, 2009). As such, it is unlikely that undergraduate programs that require as few as one course on the integration of technology are adequately preparing teachers to provide online instruction, which shifts the burden of providing professional learning to the blended and online schools (Archambault & Crippen, 2009; Pape, 2007).

While the initial need to focus on professional learning that targets the technology interface used to provide online instruction has shifted to a recognized need to concentrate on support and pedagogy, "a substantial amount of professional development time is still spent on learning the technology" (Lowes, 2007, p.164). A continued focus to properly prepare pre-service teachers, pedagogical issues in traditional environments, online pedagogy, classroom management in traditional and online settings, and various technology resources and learning management systems to facilitate online instruction and assessment should comprise college programs charged with preparing future teachers of blended and online instruction (Archambault & Crippen, 2009).

Consistency regarding professional learning for teachers who provide online instruction does not exist (Lowes, 2007). This inconsistency is likely due to the lack of structure in university certification programs (Archambault & Crippen, 2009; Herring, 2004; Lowes, 2007); school-level, as opposed to state-wide or nation-wide, identification of professional development foci (Lowes, 2007); and a lack of regulations regarding the online learning environment (Lowes, 2007; Reid et al., 2009).

While these variances exist, there are some areas that states and practitioners agree upon, including the requirement that teachers who provide online instruction participate in an online course prior to providing instruction (Lowes, 2007; Watson & Gemin, 2009), providing professional learning for teachers of blended an online instruction in a blended learning format (Lowes, 2007; Watson & Ryan, 2006), and identifying the need to provide mentors for teachers who provide online instruction (Lowes, 2007; Pape, 2007).

Programs implement professional learning programs in a variety of ways, but most incorporate an online component at least part of the time to focus on a variety of topics: online pedagogy, policies, technology content delivery resources, and the learning management system (Pape, 2007). While some provide the professional learning from internal experts, most rely on experienced online learning providers to provide professional learning (Pape, 2007).

Most pre-service teaching programs do not offer courses of study focused on preparing teachers to provide instruction in blended and online learning environments (Watson et al., 2011). In the majority of states, certification requirements for teachers who provide online instruction are no different than states' certification requirements for teachers in traditional, brick-and-mortar programs (Watson et al., 2004).

In addition to addressing pre-service programs that did not required integrated technology courses of pre-service teachers, schools developing blended and online programs face certification challenges for teachers. State qualifications for teachers who provide online instruction do not differ from state licensure for teachers providing instruction in traditional learning environments (Watson et al., 2008; Watson & Ryan, 2006); however, some are beginning to develop additional requirements for these professionals (Watson et al., 2008).

Realizing the need for extensive professional learning focused on teaching in an online environment, most prefer employing teachers with previous classroom experience to expecting novice teachers to master both content expertise and effective online instruction simultaneously (Watson & Ryan, 2006). While practitioners recognize the need for extensive professional learning focused on effective teaching skills, pedagogy, classroom management, communication, and student engagement in online learning environments, there is no consistency regarding the amount of time such professional learning requires (Watson & Ryan, 2006).

To assess teachers' online instruction, administrators rely on quality assurance measures such as rubrics that encompass student assessments, administrators' observations, communication through courses, and implemented interventions to increase student achievement; a comprehensive review of feedback from all stakeholder groups, including parents, students, other staff members, and teachers' self-reflections; feedback, both formative and summative, given to teachers through the year; and evaluations systems that incorporate multiple measures of teachers' performance, student achievement, course completion, and student retention; and professional growth (Pape, 2007).

Teachers communicate a variety of professional learning needs associated with teaching in an online or blended learning environment. The most common need communicated regarding professional development, is the need of in-school support from technology experts to answer questions or provide resources (Oliver et al., 2010).

The timeline for professional development should be ongoing (Oliver et al., 2010); however, few programs extend professional learning support beyond the first year of implementing blended or online instruction. Specifically, while most teachers participate in professional learning during their first year of providing online and blended instruction, half as

many say the same during their second year of teaching in a blended or online environment (Rice & Dawley, 2007).

More specifically, teachers need well-timed, bite-sized professional development, comparative models of course design, orientation of course delivery tools, how to assess learners online, how to prepare online content without violating copyright restrictions, ensuring online safety of students, definitions and best practices of Web 2.0, and how to prepare documentation for a course to assist in deployment efforts (Oliver, 2010).

Common professional development themes included the following: building community and interaction; use of a train-the-trainer model; tiered training to address the needs of advanced teachers; attendance at professional conferences; and participating in social networks as forms of professional development (Rice & Dawley, 2007).

First-year topics included knowledge of online teaching (63 percent), asynchronous communication tools (63 percent), LMS tools (62 percent), and time management strategies (63 percent) (Rice & Dawley, 2007). Least reported topics included design tools (nine percent), graphic design principles (nine percent), and presentation tools (nine percent) (Rice & Dawley, 2007).

Second-year topics included knowledge of the field of online teaching (70 percent), asynchronous communication tools (70 percent), and synchronous communication tools (70 percent) (Rice and Dawley, 2007). Least emphasis was given to graphic design principles of online lessons (20 percent) and instructional design principles (20 percent) (Rice & Dawley, 2007).

The majority of professional development is provided by schools (Rice & Dawley, 2007). Sixty-nine percent reported participating in ongoing sessions; 52 percent were limited to one-time sessions; and 34 percent attended summer workshops (Rice & Dawley, 2007).

While the need for professional development to support blended and online learning is consistently supported, the topics of professional learning and the amount of time that teachers receive structured professional support varies across programs, studies, and states. Administrators can support professional learning needs; however, as explained in the next section, their professional learning needs oftentimes go unmet.

2.3.2 Administrative Support

Teachers continue to identify the need for administrative support in removing barriers to integrating technology with classroom instruction (Creighton, 2003; Oliver et al., 2010). In fact, ineffective leadership is one of the top reasons that technology programs fail (Creighton, 2003). Perhaps this lack of administrative support relates to administrators' unawareness of the extensive professional development needs that school personnel require (Davis, Rose, & iNACOL, 2007; Cate & O'Hare, 2007).

Another potential culprit of school leaders' lack of support could be the lack of support they receive themselves during their pre-service programs. Rarely do college programs focus on developing future principals in the area of technology leadership, so principals have the skills necessary to create a school environment conducive to maximizing technology integration in course curricula (Creighton, 2003; Schrum, Galizio, English, & Ledesma, 2011).

Left to their own devices, most administrators who were not formally trained in implementing technology systemically have developed their knowledge on their own or through

other educational experiences (Schrum et al., 2011). Pursuing these personal learning endeavors, administrators leading blended and online learning initiatives are savvy with technology (Davis & Rose, 2007), possess leadership skills to implement and sustain change (Davis & Rose, 2007), are forward-thinking (Creighton, 2003), provide feedback to teachers who develop the courses (Oliver et al., 2010), and communicate the online learning vision as part of their overall school program (Oliver et al., 2010). Administrators, both building-level and district-level, serve essential roles leading technology integration within curricular and professional learning capacities within school systems; however, how administrators without this ability impact schools remains unknown (Schrum et al., 2011).

In general, administrators impact not only program implementation, but also student achievement. Hallinger and Heck (1998) review 15 years of research exploring the relationship between principal leadership and student achievement. Hallinger and Heck (1998) categorized 40 substantive empirical studies into three models: direct-effect, mediated-effect (indirect), and reciprocal effects. While they indicated an indirect correlation between school leadership and academic achievement, Hallinger and Heck (1998) noted a shift in the literature from questions of *if* principals make a difference to *which effects* are achieved.

After reviewing approximately 5000 articles, Marzano, Waters, and McNulty (2005) selected 69 studies for their quantitative meta-analysis to answer the question: how much of a school's impact on student achievement is due to the leadership displayed in the school? Only research studies that met the following criteria were included: United States' K-12 schools; examined a direct or indirect relationship between school leadership and student achievement; and student achievement measured by standardized tests (Marzano et al., 2005). Researchers were able to identify 21 leadership responsibilities that directly correlated with students'

academic achievement: culture; order; discipline; resources; curriculum, and assessment; focus, knowledge of curriculum, instruction, and assessment; visibility; contingent rewards; communication; outreach; input; affirmation; relationship; change agent; optimizer; ideals and beliefs; monitors and evaluates; flexibility; situational awareness and intellectual stimulation (Marzano et al., 2005). Among these leadership responsibilities, *situational awareness*, defined as using an awareness of the day-to-day operations and details associated with running a school to curtail potential problems and address current situations, yielded the highest correlation (r=.33) (Marzano et al., 2005). If principals have a leadership responsibility that encompasses the day-to-day operations, or situational awareness, of blended learning, then professional learning opportunities that comprise these details need to be afforded to principals should they have the goal of positively impacting student achievement (Kowch, 2009; Marzano et al., 2005).

Kowch (2009) stipulates that the future growth of online schools is dependent on developing leaders for said programs by decreasing the knowledge gap of instructional leaders who "possess a relative lack of awareness of an entire education discipline dedicated to the integration of learning, teaching, and technology-enhanced learning systems" (p.46). Perhaps this explains the large number of educational leaders who contract with third-party curriculum providers that were primarily text-based learning (Kowch, 2009; Picciano & Seaman, 2007, 2009).

2.3.3 Technology

Blended and online learning programs rely on innovative technology that supports teaching and learning; therefore, continual assessment of the software, hardware, learning management systems, and course content is critical to sustaining an effective blended or online program

(Freidhoff, 2009). That being said, selecting technology resources should be based on the role it plays to support teaching and learning and not on the technology hardware or software itself (Creighton, 2003; Niemiec & Otte, 2010; Watson et al., 2010).

Technology hardware and software function as the facilities of online schools (Watson et al., 2010). Outdated hardware and Internet bandwidth limitations prevent many districts from implementing blended and online programs (Bailey & Martin, 2013; Watson et al., 2010). Broadband access determines the number of students who can access online content as well as the quality of their Internet connections (Bailey & Martin, 2013). According to the State Educational Technology Directors Association (2012), a minimum bandwidth of 100 megabits per second (Mbps) per 1000 students allows students to access the online content offered by most content providers; however, SETDA (2012) established a five-year goal of one gigabit per second (Gbps) per 1000 students. Lacking Internet infrastructure particularly curtails blended and online learning opportunities in rural schools (Watson et al., 2010). Additionally, classrooms need electrical outlets and power to charge or operate approximately 25 devices simultaneously, which is beyond most current classroom power source provisions (Bailey & Martin, 2013). Depending on the blended learning model being implemented, renovations to existing facilities may be necessary (Bailey & Martin, 2013).

While many studies indicate comparable technology access among urban, suburban, and rural schools, how the technology is actually used differs significantly. What identifies an exemplary school may be as simple as how students use technology. Exemplary schools use technology more frequently and in more advanced ways than their struggling colleagues who used technology primarily for word processing and practice drills (Creighton, 2003). Although using email to communicate, initial online courses still implemented text-based assignments,

expectations, questions, and feedback reflecting the same practices as face-to-face correspondence courses (Ferdig, 2009). Not only have the technologies being used to communicate and the content delivery medium changed to include multiple media types, but how these resources are used has developed to provide both asynchronous and synchronous learning opportunities for increasingly more students (Ferdig, 2009). School leaders need to consider different types of technology for their online programs, including social software to facilitate communication (Ferdig, 2009), games and simulations to engage young adult learners, interactive learning environments, and devices from which students will access courses (Ferdig, 2009).

2.3.4 Curriculum

Online programs align course content to the same content standards that traditional schools' curricula implements; no state has separate curriculum standards for online courses (Watson, 2005; Watson et al., 2004). Although the impact of online education vendors is not what it was at the inception of online learning, they still play a significant role in providing online course content for programs across the United States (Watson & Ryan, 2007; Watson et al., 2004). Online programs vary in the number of course content providers they employ. Watson and Ryan (2007) indicate that of 60 responding online programs, 23 percent of them contracted all of their courses with external providers, and the same percentage built all of their courses internally. Approximately half of the respondents licensed at least half of their courses with outside content providers, and a similar percentage licensed half or fewer of their courses with content providers (Watson & Ryan, 2007).

2.3.5 Funding

Although online programs escape costs associated with facilities, transportation, and food services, they share costs similar to traditional schools for teaching and administrative personnel, professional learning, curriculum materials, assessments, student management systems and technology (Cavanaugh, 2009). Claims that blended and online learning can decrease fiscal obligations for districts, many schools experience an educational technology cost increase in order to implement blended and online learning opportunities for students (Kennedy & Soifer, 2013). Funding questions regarding online programs apply to all online learning providers, including district-operated programs; however, because funding for fully online schools is easier to track, most of the literature and controversy around online school funding focuses on fully online programs (Watson et al., 2011).

Allocations for online schools vary from state-to-state; however, most report per-student funding between $6,000 and $7,000 per year (Watson et al., 2011). Some states, including Pennsylvania, exceed this average (Watson et al., 2011). Extended curricular options and smaller student-to-teacher ratios account for the varying per-student allocations among programs and states (Watson et al., 2011).

Challenges of funding individual online courses present additional concerns and continue to challenge statewide programs (Watson, 2005). State appropriations and course fees finance most online courses; however these provisions are laden with complications associated with enrollment dates, retention rates, and course changes (Watson, 2005). Depending on when payments are made, programs may not have appropriate funding to offer courses or grow programs beyond the minimal course of study (Watson, 2005). To determine funding for online students, most states use a full-time equivalent (FTE) funding model (Watson, 2004). Tying

funding to individual courses means students could extend beyond a full course load to exceed one FTE; for this reason, some states restrict funding to a particular number of courses not to exceed one full-time equivalent (Watson et al., 2004). Controversy around using a full-time equivalent funding model typically initiates in states where this funding reduces state appropriations for traditional school districts (Watson & Ryan, 2006). When states implement FTE funding models, however, districts and families benefit because they do not have to make payment directly to the online program (Watson & Ryan, 2006).

Enrollment eligibility provides an additional concern regarding online funding. Because of increased costs associated with previously home-schooled students, some states (Colorado and Minnesota) restrict funding available for home-schooled students. Believing that government should provide education for all children in states' geographic boundaries, other states (e.g., Idaho and Wisconsin) took the opposite stance and developed policies to provide funding for all children (Watson et al., 2004).

Concerns about sustaining online learning through state appropriations reveal the connection of states' economic stability to online learning's future (Watson & Ryan, 2006). State-led programs charge districts or parents course fees of a few hundred dollars per semester course (Watson & Ryan, 2006). These fees rarely cover the complete course costs, but to remain competitive, programs charge minimal fees (Watson & Ryan, 2006).

Single-district programs typically elude funding challenges, for funding face-to-face and online courses falls to the local budget and availability of funds among federal, state, and local revenues (Watson & Ryan, 2007). Because most states do not distinguish between funding face-to-face and online courses within individual districts, funding single-district programs does not present a challenge (Watson & Ryan, 2007).

2.3.6 Policy

There are as many approaches to online learning policy as there are states (Watson et al., 2013). The restrictions or liberties that policy provides, determines whether online learning falters or thrives in states (Watson et al., 2013). To facilitate blended learning development, schools need state policies that enable funding to follow students at the school level; provide funding distributed across multiple student-count days, rather than an isolated average daily membership date; allocate partial funding to course providers after successful completion; and investigate blended learning's impact on student achievement through state-commissioned experimental or quasi-experimental research (Kafer, 2013; Watson, 2004).

Not understanding the issues related to the various types of online learning hinders policymakers from developing practical, equitable policy (Watson, 2005). Increases to blended-learning programs presents the second generation of policy dilemma (Watson et al., 2008). Complicating the issues prevalent in online learning policy, blended learning is more difficult to define and differentiate among online learning, blended learning, or simply technology integration.

While funding remains connected to policy development, knowing neither the effectiveness of online learning nor the cost of implementing online learning contributes to the deficit hindering policy development and essential future development of blended and online learning (Watson, 2005).

So what is the future of blended and online learning? The programs being implemented through various decisions regarding resources of professional learning, administrative support, technology, curriculum, funding, and policy lead to consideration of whether the programs will sustain improved, yet traditional education system, or completely disrupt education as it

currently stands. To further consider the future of blended and online learning, the next section discusses disruptive innovation theory.

2.4 THEORETICAL FRAMEWORK

2.4.1 Disruptive Innovation Theory

According to the Clayton Christensen Institute for Disruptive Innovation, there are two types of innovations, sustaining innovation and disruptive innovation. Sustaining innovations improve leading organizations by producing increasingly better products and services that are sold to companies' existing customers. By producing increasingly better products sold for greater profits, sustaining innovations maintain companies' upward trajectory toward product improvements. Disruptive innovations, however, create new definitions of what constitutes good products and services through simpler, more convenient, cost-effective products that appeal to a new customer base (Christensen, Horn, & Johnson, 2011; Christensen, Horn, & Staker, 2013).

The availability of computers to the mainstream population serves as one disruptive innovation example. In the middle of the twentieth century, the mainframe computer became accessible to universities and corporations that had the financial means and skills to operate them. A smaller, yet still large-in-size minicomputer offered the products to more consumers; however, the customer base was still limited to wealthy, highly skilled entities. The next disruption, the personal desktop computer, initially had no impact on the microcomputer market, for it was not effective in meeting the needs of its minicomputer customer base. The customer base that did find use for the personal computer, children, did not have an alternative and were

excited about using this new product where an alternative previously did not exist for them. The desktop computer continued to improve in functionality and cost, and its customer base increased. As computers continued to develop mobile options, from laptops to tablets to smartphones, the personal computer continues to develop as a disruptive innovation by offering functionality, convenience, and low-cost options to the general population (Christensen, Horn, & Staker, 2013).

Disruptive innovations gain momentum in markets where consumers have a choice between the potentially disruptive innovation and no comparable product (Christensen, Horn, & Staker, 2013). For example, initially, online programs acquired momentum in areas where there was no alternative, or for courses that were not available to particular student populations (i.e., Advanced Placement, credit recovery) (Christensen, Horn, & Staker, 2013).

Another characteristic of disruptive innovation lies in the ability to predict when the disruptive innovation will replace the established system. Calculating "the ratio of market share held by the new innovation divided by the old way of doing things" and plotting the results on a logarithmic scale results in a straight line (Christensen, Horn, & Staker, 2013, p.8). Again, online learning meets this threshold and predicts that by 2019, online high school courses will account for approximately 50 percent of course offerings (Christensen, Horn, & Staker, 2013). Although increased adoption of online courses was merely a prediction a few years ago (Christensen, Horn, & Johnson, 2008), current reported trends of online learning for students in kindergarten through twelfth grade confirm the accuracy of the projected growth rate (Christensen, Horn, & Staker, 2013; Watson et al., 2013).

The third characteristic of disruptive innovation shows increased improvement over time until eventually, the disruptive innovation meets the demands and needs of mainstream

consumers (Christensen, Horn, & Staker, 2013). Because these cost-effective products and services continue to improve and meet increasingly more customers' needs, they eventually intersect with the more discerning customer base to transform a particular sector (Christensen, Horn, & Staker, 2013). Online learning reaps the benefits of sustaining innovations such as faster, cheaper, and increasingly portable computers and electronic communication tools such as Skype, Blackboard Collaborate, and other web conferencing resources fostering synchronous virtual communication that is reliable and cost-effective to secure its continued disruptive innovation trajectory (Christensen, Horn, & Staker, 2013).

2.4.2 Hybrid Theory (Sustaining Innovations)

For leading companies, disruptive innovations typically emerge as transitions that combine a previous technology, resource, or product with the new product to create the best of both worlds. Through this process, described as a hybrid theory, leading organizations attempt to retain their original customer base by sustaining or improving upon their products to maintain their competitive edge and prominence at the top of their competitive consumer base (Christensen, Horn, & Staker, 2013). Considered sustaining innovations, hybrids meet four characteristics by including both old and new technology, targeting existing customers (as opposed to non-consumers), doing the work of preexisting technology, and at least maintaining the level of proficiency needed to operate it (Christensen, Horn, & Staker, 2013).

Like disruptive and other sustaining innovations, hybrids extend beyond an educational application. One example is the hybrid of gas and electric in cars. Compared to gasoline-powered engines, electric-powered cards serve as disruptive innovations. Not as fast and limited to short trips due to charging requirements, this disruptive innovation is limited by faster,

cheaper, and better performing gasoline-powered competitors consumed by a large general population. The hybrid automobiles that combine battery-powered engines with gasoline-powered ones have impacted the industry as a sustaining innovation that provides increased mileage and horsepower in cars. Based on this scenario, electric-powered cars may serve the automobile industry as disruptive innovations; however, the hybrids will sustain gasoline-powered automobiles and their manufacturing companies (Christensen, Horn, & Staker, 2013).

Applying this rationale to education, online learning may be a disruptive innovation to the traditional education system; however, the hybrid of blended learning will sustain the traditional education system for years to come. See *Figure 12. Differences between Disruptive Innovations and Hybrid Sustaining Innovations* (Christensen, Horn, & Staker, 2013).

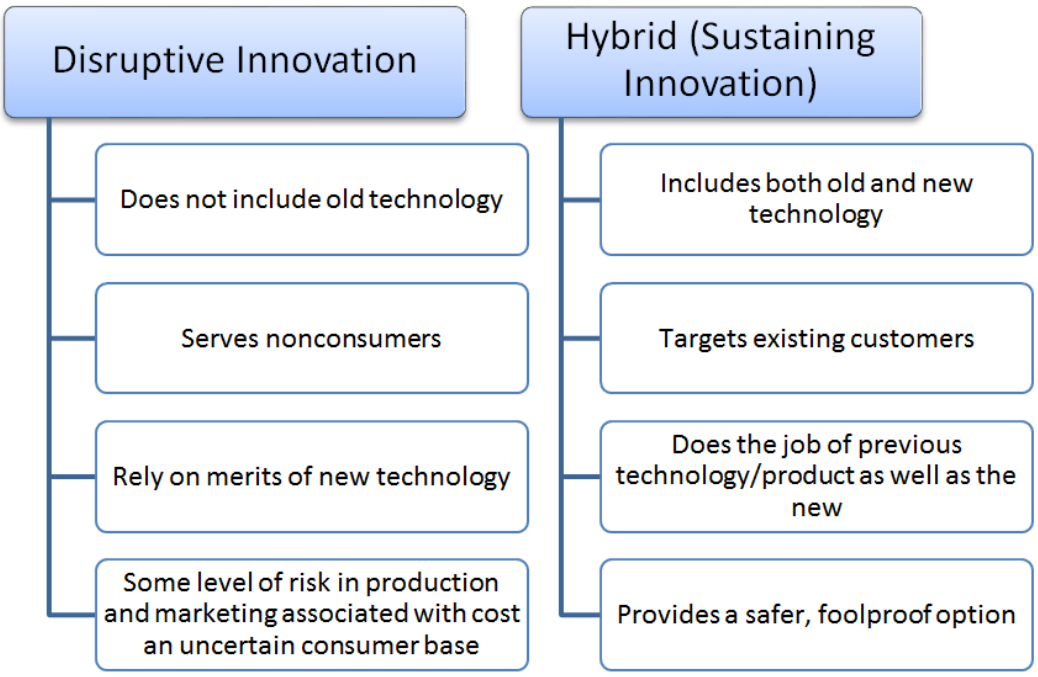


Figure 12. Differences between Disruptive Innovations and Hybrid Sustaining Innovations (Christensen, Horn, & Staker, 2013)

2.4.2.1 Blended Learning: Disruptive and Sustaining

For a product to be disruptive, it must acquire a non-existing customer base; however, K-12 education in the United States is compulsory; therefore, a hybrid solution provides the sole option for a new technology that improves the existing market (Christensen, Horn, & Staker, 2013). That being said, there are some models of blended learning that capitalize on the disruptive innovation benefits that online learning promised: affordability, convenience, accessibility, and simplicity and have the potential to function as disruptive innovations.

There are multiple ways to classify blended learning as an innovation, depending on the model implemented in schools. Researchers classify schools that maintain components of both traditional, face-to-face classrooms as well as online learning in their blended learning models as sustaining hybrid innovations. By relying on the physical building structure and improving upon an existing educational program for the original student population, these blended learning models (Station Rotation, Lab Rotation, and Flipped Classroom) sustain traditional school operations, and are classified as sustaining hybrid innovations (Christensen, Horn, & Staker, 2013).

Other models of blended learning (Flex, A La Carte, Enriched Virtual, and Individual Rotation) demonstrate disruptive development, in comparison to the traditional school system. By combining new technology with little resemblance to the traditional classroom, these models have a greater potential of reaching disruptive innovation classification than other models of blended learning, which more closely align to traditional school systems. These potentially disruptive models originated with non-consumption audiences, such as students who had dropped out of school or who needed access to Advanced Placement or extended curricular options (A La Carte), or with students wanting fully online programs who needed some level of

face-to-face support or interaction (Enriched Virtual). Additionally, these potentially disruptive models typically ignore seat-time, as required by traditional school systems, to measure students' progression through courses. Instead, these blended learning models encourage self-paced progression where students determine the time, path, pace, and place that learning occurs (Christensen, Horn, & Staker, 2013). See *Figure 13. Blended Learning: A Sustaining and Disruptive Innovation*.

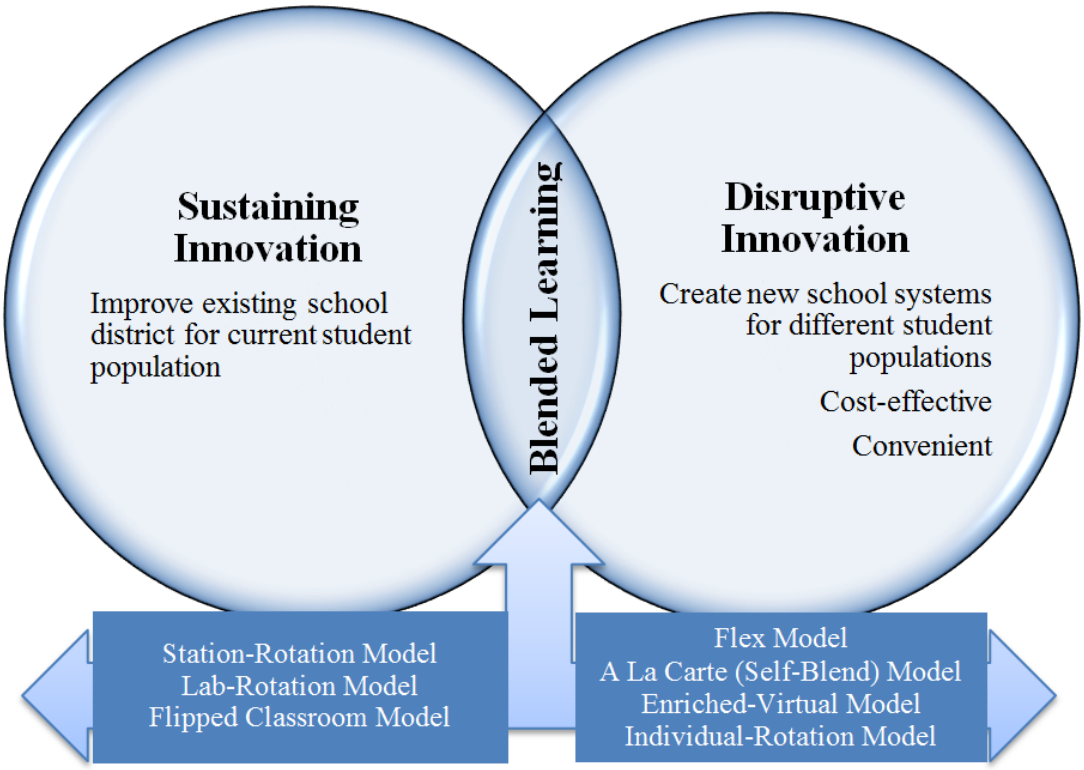


Figure 13. Blended Learning: A Sustaining and Disruptive Innovation

2.4.3 Summary

While disruptive innovations eventually replace sustaining innovations, researchers clarify that one innovation is not good and the other bad; instead, both must coexist to maintain a healthy

sector competing for increasingly better products and services (Christensen, Horn, & Staker, 2013). While online learning and some blended learning models meet the characteristics of disruptive innovation theory (Flex, A La Carte, Enriched Virtual, and Individual Rotation), other blended learning models (Station Rotation, Lab Rotation, and Flipped Classroom) continue to improve the traditional education system as models of sustaining innovations.

The next chapter describes the proposed study that will investigate the nature of blended and online learning, the reasons traditional school districts implement blended and online learning, and the barriers and benefits that superintendents identify regarding the implementation of blended and online learning.

2.5 CONCLUSION

Although implemented for over a decade in many schools (Rice, 2006), little is known about what blended and online programs look like in traditional school districts, why school leaders implement blended and online programs, what barriers schools face and what benefits schools enjoy from blended and online programs (Watson et al., 2013). Annual surveys continue to document increased blended and online course enrollment, however, who is participating continues to elude the research literature (Watson et al., 2012). Among concerns of equity and access to blended and online learning, the omission of participants' demographic data results in an inability to determine whether students from all geographic regions, ethnicities, and economic levels are able to access blended and online courses (Watson, 2005; Watson et al., 2013). Although instructional, economic, and systemic benefits are documented in the literature (See Figure 4. Benefits of Online Learning and Figure 9. Benefits of Blended Learning), whether all

school districts enjoy these benefits remains unknown. Additionally, the barriers to blended and online learning (See Figures 7. Resource Challenges for Online Programs, Figure 8. Instructional Challenges of Online Learning, and Figure 10. Challenges of Blended Learning) may impact rural and suburban districts differently. Once research accurately documents the populations of students actually participating in blended and online learning, the educational community will be better positioned to determine the equity and access among all students in all districts. The next chapter will describe a survey research study that aims to determine the prevalence of blended and online programs in three rural counties in Pennsylvania.

3.0 METHODS

This study used descriptive statistics to describe blended and online programs of traditional school districts of three rural counties in Pennsylvania. A survey instrument modified from a previously implemented survey (Picciano & Seaman, 2009) was administered to 25 school district superintendents representing all traditional public school districts within the three-county area. Because questions included in the original survey instrument (Picciano & Seaman, 2009) were pulled from various studies spanning multiple years, validity data for the original instrument were not available in any usable form (personal email correspondence with Jeffrey Seaman, March 23, 2014).

After a brief introduction of blended and online learning, the remainder of this chapter describes the importance of the study, the statement of the problem, the research questions, procedures, and data analysis.

3.1 BLENDED AND ONLINE LEARNING

Since its inception in the early 1990s, online learning promised to capitalize on the use of technology to provide varied educational opportunities and highly qualified teachers for all students, in particular students who did not have access to courses and online learning opportunities (Barbour & Ferdig, 2012; Moore et al., 2011; Rice, 2006). Online learning

supporters tout cost-effective means of providing high quality, equitable educational opportunities for all learners. While few students used online learning at the turn of the twenty-first century, online learning now accounts for approximately five percent of the overall school-age student population (Watson et al., 2013). Due to limited access to online learning data, however, this report may underestimate the actual percentage of school-age children participating in online learning. At the very least, provisions for online learning may still be tied to where students live (Watson et al., 2013).

Although referenced as the fastest growing area of online learning (Watson et al., 2012), blended learning in traditional school districts may still be tied to where students live (Watson et al., 2013). Overall, blended learning capitalizes on the instructional expertise of traditional classroom instruction and the varied resources of content and time that online content providers and the Internet supply. Although some question the increased isolation that online learning can provide, blended learning offers opportunities for increased interaction among students and teachers by extending the school day as well as the individualized interaction that technology facilitates (Bailey et al., 2013; Bergmann & Sams, 2012).

Multiple models of blended learning are emerging in the literature: rotation models, flex models, self-blend models, and enriched-virtual models. While some of these models function on a school level, others benefit from course-level implementation and flexibility. Although all blend online and traditional learning opportunities, the variance in teachers' roles, students' levels of independence, and the location of online learning define the various models of blended learning. Just as online learning encourages more self-regulated learning of students, some models of blended learning encourage the same independent learning process; other blended learning models, however, rely on teachers to direct the learning process and maintain a

traditional school system operation. When a disruptive innovation framework is applied to blended and online learning, schools' futures may hinge on whether they capitalize on the flexibility that technology provides or whether they are merely sustaining a traditional school system that will eventually become obsolete (Christensen, Horn, & Johns, 2011; Christensen, Horn, & Staker, 2013).

Disruptive innovations provide new definitions of what constitutes good products and services through simpler, more convenient, cost-effective products that appeal to a new customer base. Sustaining innovations, however, improve leading organizations by producing increasingly better products sold to companies' existing customers (Christensen, Horn, & Johnson, 2011; Christensen, Horn, & Staker, 2013). Depending on how school districts implement blended and online programs, their sustaining innovations may eventually be replaced by the disruptive innovations that will eventually surpass the quality, convenience, and cost-effectiveness that traditional school systems now provide to the majority of school-age children in kindergarten through twelfth grade.

This section explains the proposed research study by sharing the importance of the study, the statement of the problem, the research procedures, the research design, and how the data will be analyzed.

3.2 RESEARCH METHOD

Prevalent in educational research, a survey instrument allows data collection from a large number of participants in a cost-effective and timely manner (Creswell, 2005; Mertens, 2005),

and is optimal for describing a population too large for direct observation by an individual researcher (Babbie, 2007).

This simple descriptive survey was implemented to describe blended and online programs during the 2012-2013 School Year, in 25 traditional school districts of three rural counties. This simple descriptive approach captured participants' information through a one-time sample accounting for one point in time (Mertens, 2005). The modified survey was distributed to a purposeful sample that included 13 rural school districts, which was 52 percent of the overall participant population. Because the research literature advocated the benefits of blended and online learning for rural school districts, in particular, this purposive sample helped to ensure that a rural population was represented in the findings (Mertens, 2005).

A pilot study verified that the survey instrument was appropriate for a comparable participant population; allowed for comments regarding the process, questions, and ambiguities; provided an opportunity to practice survey administration using the Qualtrics Survey System; and allowed the collection of sample data to ensure that questions were formatted appropriately for data analysis (Mertens, 2005).

Prior to survey disbursement, the researcher provided an oral invitation to participate during a superintendents' advisory council meeting, of which she was a member. Any members not present at the meeting were contacted by the researcher via telephone, and the same invitation to participate was read over the phone. The modified survey was then distributed to participants via Qualtrics Survey System.

Literature documents a primary concern with web-based surveys that all potential participants do not have Internet access, and therefore, would be unable to participate in the study (Dillman, 2000; Mertens, 2005). This concern did not pertain to this study's participant

population, for all 25 districts had Internet service, and all superintendents had active email addresses. Another documented concern regarding surveys distribution via the Internet was that the technical sophistication of the survey could limit participation of some (Mertens, 2005). The technical sophistication of the modified survey instrument was not a barrier for any of the participants in the pilot study.

In addition to a streamlined survey administration and communication process, the web-based survey facilitated accurate data collection by removing the potential of human error in transferring data from paper to a computer program for analysis.

3.3 IMPORTANCE OF THE STUDY

This study separated findings between blended and online programs as well as between rural and suburban (urban, fringe of a large city) districts to determine if differences in participants' responses existed. Additionally, responses were separated to account for three groups of respondents: superintendents of traditional school districts that implemented online programs; superintendents of traditional school districts that implemented both blended and online programs; and superintendents of traditional school districts that implemented neither blended nor online programs. None of the participants were superintendents of traditional school districts that implemented blended programs only. As a final consideration, data analysis and results accounted for district wealth by determining if a relationship between school district's market value aid ratios (MVAR) related to the findings. This study sought to add to practitioners',

researchers', policymakers', and other stakeholders' understanding of blended and online programs being implemented in traditional school districts.

3.4 STATEMENT OF THE PROBLEM

National surveys regarding blended and online programs continue to document an increased enrollment of K-12 students participating in blended and online learning. The overall research base regarding blended and online programs implemented for K-12 students is limited. Although limited, data for fully online schools, such as cyber charter schools, are available; however, data are not disaggregated for K-12 students who participate in blended and online programs as part of their enrollment in traditional school districts.

3.5 RESEARCH QUESTIONS

1. What is the nature of blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?
2. Why do traditional school districts of three counties in southwestern Pennsylvania implement blended and online programs?
3. According to school district superintendents, what are the barriers to implementing blended and online programs in school districts of three counties in southwestern Pennsylvania?

4. According to school district superintendents, what are the benefits to implementing blended and online programs in school districts of three counties in southwestern Pennsylvania?

3.6 PROCEDURES

3.6.1 Sampling

Because online programs potentially have the most disruptive impact on rural school districts, a purposeful sample that included traditional school district superintendents leading rural school districts were selected. Twenty-five superintendents of traditional public school districts from three counties in southwestern Pennsylvania were asked to participate in the study. These three counties were classified as rural (Census, 2010) and provided a purposeful sample of rural school districts. Superintendents were able to provide a district-level perspective and because all districts employ superintendents, they provided a comparable participant response among all school districts. All superintendents leading school districts in these three counties were asked to participate. Among these three counties, six school districts were in the first county, five school districts were in the second county, and fourteen districts were in the third county.

Thirteen school districts were classified as *rural*, one school district was categorized as *small town*, and eleven were categorized as *urban fringe of a large city*. Although several were classified as rural school districts, overall the school districts ranged in size and demographics, and represented a variety of blended and online programs being implemented in Pennsylvania school districts. School district's market value aid ratios ranged from .7448 to .3556. District

populations ranged from 10,155 to 38,310 residents and district enrollments ranged from 588 students to 4988 students. The student populations identified as economically disadvantaged served in each district varied from a low of 4.19 percent to a high of 67.82 percent. Few students in any of the districts were classified as English Language Learners, and students receiving special education services ranged from 10.13 percent of the overall student population to 21.03 percent. For clarification, students receiving special education services included students with mental retardation, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance, orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities (IDEA, 2004). The majority of all students in these 25 school districts were White, with the range of 57.4 percent to 98.25 identified as this ethnicity (Pennsylvania Department of Education, 2013).

To assess the number of participants necessary to comprise strength to the validity of the data, a power analysis indicated that for an alpha level of 0.05, a sample size of at least 24 was necessary. Twenty-four superintendents participated in the study, which met this threshold.

3.6.2 The Survey Instrument

Picciano and Seaman (2007) published an inaugural, national survey of school superintendents' responses regarding online learning implementation for K-12 students. Two years later, a follow-up study included both blended and online programs from the school superintendents' perspective (Picciano & Seaman, 2009), which was modified and administered as part of this research study. Modifications are available in Appendix A. Jeffrey Seaman provided written permission to use the survey instrument on January 31, 2014. Because questions included in the

original survey instrument (Picciano & Seaman, 2009) were pulled from various studies spanning multiple years, validity data for the original instrument were not available in any usable form (personal email correspondence with Jeffrey Seaman, March 23, 2014).

Survey revisions reflected a revised date for requested information (from 2007-2008 to 2012-2013); updated definitions of blended and online courses, modified survey scales in number, descriptors, and in some cases content; and an additional question to determine the blended learning models being implemented in traditional school districts. Additionally, the initial survey was distributed by email and/or postal mail; however, this study used a web-based Qualtrics Survey System to distribute the modified survey instrument to participants. A framework demonstrating an alignment among initial survey questions, revised survey questions, rationales for revisions, and the literature base supporting the survey item is provided in *Appendix A. Comparisons between the Picciano & Seaman 2009 Survey Instrument and the Modified Survey Instrument*.

The modified 14-item survey instrument was created in Qualtrics. Survey items included the following item types: matrix table, multiple-answer (survey items 1, 6, 10, 11, and 12); matrix table, single-answer (survey items 2, 3, 4, 5, 7, 8, 13, and 14); and multiple-choice, multiple answer (survey item 9). The modified survey instrument was a closed response, modified survey that applied display logic based on participants' response to the initial survey question regarding the implementation of blended and online programs in their school districts. The number of questions that participants were asked to answer ranged from seven to 14 items.

Display logic, based on participants' response to Survey Question One, was applied to several questions. The modified survey displayed the following questions for respondents who answered *at least one student took this type of course offered by a teacher in our school district*

or *at least one student took this type of course from a provider outside of our school district (i.e., intermediate unit consortium, post-secondary institution, another school district, vendor)* for Survey Question One regarding blended and/or online courses: Survey Question Six, Survey Question 10, Survey Question 11, and Survey Question 12.

Additionally, display logic, based on participants' response of *at least one student took this type of course offered by a teacher in our school district* or *at least one student took this type of course from a provider outside of our school district (i.e., intermediate unit consortium, post-secondary institution, another school district, vendor)* to Survey Question One for blended courses, was applied to Question Eight and Question Nine.

Additionally, display logic, based on participants' response of *at least one student took this type of course offered by a teacher in our school district* or *at least one student took this type of course from a provider outside of our school district (i.e., intermediate unit consortium, post-secondary institution, another school district, vendor)* for Question One for online courses was applied to Question Seven. For a summary of the display logic applied to survey questions, please see *Figure 14. Qualtrics Survey System Display Logic Application to Participant Groups*.

Participants	Number of Questions Based on Survey Question One Response	Survey Items to Be Answered
Participants of Districts Implementing Online Programs	12 survey questions	1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 14
Participants of Districts Implementing Blended Programs	13 survey questions	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14
Participants of Districts Implementing Both Blended and Online Programs	14 survey questions	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14
Participants of Districts Implementing Neither Blended nor Online Programs	7 survey questions	1, 2, 3, 4, 5, 13, 14

Figure 14. Qualtrics Survey System Display Logic Application to Participant Group

After approval of the study by the Institutional Review Board (provided March 12, 2014), the survey instrument was distributed from Qualtrics Survey Service.

To distribute the web-based survey, the researcher used the panel feature of Qualtrics Survey Service. This allowed the researcher to send email invitations to participants, which included an individualized Internet address to access and complete the survey instrument. This feature also allowed the researcher to monitor survey completion and progress and to send follow-up invitations, as necessary, to non-responding participants.

To generate a panel of participants, the researcher created a new panel, "Blended and Online Learning Survey Participants" as well as an Excel spreadsheet (.csv) that included participants' first names, last names, and primary email addresses. After importing the Excel spreadsheet into the panel, the researcher verified the fields from the .csv file (Excel spreadsheet), and imported the file into the panel. After review, the saved .csv file was deleted from the researcher's computer so that the only location of participants' contact information storage was within the Qualtrics Survey System, which required the researcher's log-in credentials to access. The researcher used the created panel, "Blended and Online Learning Survey Participants" for survey instrument distribution.

3.6.2.1 Framing the Research and Survey Questions

For Research Question One, responses from survey items one, six, seven, eight, nine, ten, eleven, twelve, thirteen, and fourteen were used to assess the nature of blended and online programs in traditional school districts. See *Figure 15. Alignment among Research Question One, Survey Items, and Supporting Literature*.

Research Question	Survey Items	Reference to Literature Review	
		Components	**Supporting Research**
1. What is the nature of blended and online programs in traditional school districts?	1, 6, 7, 8, 9, 10, 11, 12, 13, 14	• Enrollment • Meet Educational Need • Political Support • Student Characteristics • Teacher Characteristics • Administrator Characteristics • Blended Learning Models • Online Content Providers	**Both Blended and Online** Cavanaugh, Barbour, Clark, 2009; NCES, 2011; Pape & Wicks, 2009; Project Tomorrow, 2009; SREB, 2012; Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013 **Blended** Bailey & Martin, 2013; Barbour & Ferdig, 2012; Bergman & Sams; Horn & Staker, 2012; Kafer, 2013; Matheos, Daniel, & McCalla, 2005; Niemiec & Otte, 2010; Rudi, 2012; Staker, n.d.; Staker & Horn, 2012; Tucker, 2012 **Online** Archambault & Crippen, 2009; Barbour & Ferdig, 2012; Cavanaugh et al., 2004; Cavanaugh, Barbour, & Clark, 2009; Farley & Lare, 2012; Haglund, 2012; Horn & Staker, 2011; Marsh, Carr-Chellman, & Sockman, 2009; Moore, Dickson-Deane & Galyen, 2011; Palloff & Pratt, 2011; Pape et al., 2012; Reid et al., 2009; Rice, 2006; Roblyer & McKenzie, 2000; Vornberg & Maris, 2003; Wicks, 2010

Figure 15. Alignment among Research Question One, Survey Items, and Supporting Literature

For Research Question Two, responses from survey items two, three, seven, and eight were used to assess the reasons traditional school districts implement blended and online programs. See Figure 16. Alignment among Research Question Two, Survey Items, and Supporting Literature.

Research Question	Survey Items	Reference to Literature Review	
		Reasons	**Supporting Research**
2. Why do traditional school districts implement blended and online programs?	2, 3, 7, 8	• Pedagogical Benefit • Addresses increased enrollment needs • Financial Benefit • Meet shortage of highly qualified teachers • Expand curricular offerings • Meet students' needs	**Blended** Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013 **Online** Barbour & Ferdig, 2012; Christensen, Horn, & Johnson, 2011; SREB, 2011; Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013

Figure 16. Alignment among Research Question Two, Survey Items, and Supporting Literature

For Research Question Three, responses from survey items four, five, and eight were used to assess the barriers to traditional school districts implementing blended and online programs. See *Figure 17. Alignment among Research Question Three, Survey Items, and Supporting Literature*.

<table>
<tr><th>Research Question</th><th>Survey Items</th><th>Reference to Literature Review</th></tr>
<tr><td>3. According to school district superintendents, what are the barriers to implementing blended and online programs in school districts?</td><td>4, 5, 8</td><td>
<table>
<tr><th>Resource Challenges</th><th>Supporting Research</th></tr>
<tr><td>Technology Access</td><td>Cavanaugh et al., 2009; Watson et al., 2008</td></tr>
<tr><td>Accreditation of Online Courses</td><td>Cavanaugh et al., 2009</td></tr>
<tr><td>Professional Learning for Existing Staff Members</td><td>Archambault & Crippen, 2009; Barbour & Kerdig, 2012; Hawkins & MacMillan, 1993; Herring, 2004</td></tr>
<tr><td>Support Programs for Struggling Students</td><td>Cavanaugh et al., 2009; Rice, 2006</td></tr>
<tr><th>Instructional Challenges</th><th>Supporting Research</th></tr>
<tr><td>Student Readiness & Retention</td><td>Cavanaugh et al., 2009; Reid et al., 2009; SREB, 2011</td></tr>
<tr><td>Students' Limited Technology Skills</td><td>SREB, 2011</td></tr>
<tr><td>Difficulty of Online Courses</td><td>Oliver et al., 2009; SREB, 2011</td></tr>
<tr><td>Increased Student-Teacher Ratios</td><td>Archambault & Crippen, 2009</td></tr>
<tr><td>Course Content Focus</td><td>Oliver et al., 2009</td></tr>
</table>
</td></tr>
</table>

Figure 17. Alignment among Research Question Three, Survey Items, and Supporting Literature

For Research Question Four, responses from survey items two, three, seven, and eight, were used to assess the benefits to traditional school districts implementing blended and online programs. See *Figure 18. Alignment among Research Question Four, Survey Items, and Supporting Literature*.

<table>
<tr><th>Research Question</th><th>Survey Items</th><th>Reference to Literature Review</th></tr>
<tr><td>4. According to school district superintendents, what are the benefits to implementing blended and online programs in traditional school districts?</td><td>2, 3, 7, 8</td><td>
<table>
<tr><th>Instructional Benefits</th><th>Supporting Research</th></tr>
<tr><td>Increased Student Motivation</td><td>Cavanaugh, Barbour, & Clark, 2009</td></tr>
<tr><td>Expanded Educational Access</td><td>Berman & Tinker, 1997; Cavanaugh, Barbour, & Clark, 2009; Cavanaugh & Clark, 2007; Larson & Murray, 2008; Reid et al., 2009; Rice, 2006</td></tr>
<tr><td>High-Quality Learning Experiences</td><td>Cavanaugh et al., 2009</td></tr>
<tr><td>Improved Student Outcomes</td><td>Barbour & Reeves, 2009; Cavanaugh et al., 2009</td></tr>
<tr><td>Increased Individualized Interaction between Teachers and Students</td><td>Archambault & Crippen, 2009; Bergmann & Sams, 2012; Haglund, 2012; McFarlane, 2011</td></tr>
<tr><td>Flexible Learning Time & Location</td><td>Barbour & Reeves, 2009; Oliver et al., 2009; Rice, 2006</td></tr>
<tr><td>Increased Learning Time</td><td>Bailey et al., 2013; Staker & Horn, 2012</td></tr>
<tr><td>Student Ownership of Learning</td><td>Oliver et al., 2009</td></tr>
<tr><td>Decreased Classroom Management Issues</td><td>Archambault & Crippen, 2009; McFarlane, 2011</td></tr>
<tr><td>Meeting Graduation Requirements Sooner</td><td>Niemiec & Otte, 2010</td></tr>
<tr><td>Extended Course Content</td><td>Tubbs et al., 2012</td></tr>
<tr><td>Self-Paced Learning</td><td>Kim & Thompson, 2012</td></tr>
<tr><td>Time for Student Reflection Prior to Responding</td><td>Richardson & Swan, 2012</td></tr>
<tr><td>Accommodations for Credit Deficiencies</td><td>Cavanaugh & Clark, 2007; Reid et al., 2009; Rice, 2006</td></tr>
<tr><td>Reduced or Eliminated Discrimination</td><td>McFarlane, 2011</td></tr>
<tr><th>Economic Benefits</th><th>Supporting Research</th></tr>
<tr><td>Administrative Efficiency</td><td>Barbour & Reeves, 2009; Cavanaugh et al., 2009</td></tr>
<tr><td>Accommodated Enrollment Gains</td><td>Niemiec & Otte, 2010</td></tr>
<tr><td>Decreased Assessment Costs</td><td>Tucker, 2012</td></tr>
<tr><td>Reduction in Revenue Loss</td><td>McFarlane, 2011; Reid et al., 2009</td></tr>
<tr><td>Decreased District Per Pupil Costs</td><td>Reid et al., 2009</td></tr>
<tr><td>Teachers Stay Home With Children</td><td>Archambault & Crippen, 2009</td></tr>
<tr><th>Political/Systemic Benefits</th><th>Supporting Research</th></tr>
<tr><td>Enhanced Reputation & Competitive Edge</td><td>Niemiec & Otte, 2010</td></tr>
<tr><td>Expanded Educational Access</td><td>Berman & Tinker, 1997; Cavanaugh et al., 2009; Cavanaugh & Clark, 2007; Reid et al., 2009; Rice, 2006</td></tr>
<tr><td>Educational Choices for Families</td><td>Barbour & Reeves, 2007; Cavanaugh et al., 2009</td></tr>
<tr><td>Options for Crowded Schools</td><td>Cavanaugh & Clark, 2007</td></tr>
<tr><td>Increased Highly Qualified Staff</td><td>Cavanaugh & Clark, 2007; Horn & Staker, 2011; Kafer, 2013; Reid et al., 2009</td></tr>
</table>
</td></tr>
</table>

Figure 18. Alignment among Research Question Four, Survey Items, and Supporting Literature

3.6.3 Data Collection Procedures

Response rates from Internet-based surveys increase when researchers initiate personal contact with participants, make contact prior to sending the survey, and provide follow-up correspondence with non-respondents (Cook, Heath, & Thompson, 2000; Mertens, 2005). To initiate personal contact prior to survey instrument distribution, the researcher read the "Invitation to Participate" (Appendix B) to participants during a face-to-face meeting of the Superintendents Advisory Council, of which the researcher was a recent member. Since some

participants were not be in attendance at the meeting, she telephoned absent participants and read the same invitation to participate (Appendix C). Initial contact, either face-to-face or by telephone, occurred prior to emailing the survey participation request, which included an individualized Internet link associated with participants' survey responses.

The web-based survey instrument was active for two weeks. In the middle of the first week that the survey instrument was active, the researcher emailed non-responding participants to request completion of the survey instrument (see Appendix D). In the middle of the second week that the survey instrument was active, the researcher telephoned non-responding participants to request completion of the survey instrument (see Appendix E). The maximum number of times that participants were contacted was four times: initial introduction (face-to-face or telephone), initial request to participate in the survey (email), first request for non-responding participants (email), and second request for non-responding participants (telephone).

3.7 DATA ANALYSIS

This section explains how the data from the study are analyzed. Data were downloaded from the Qualtrics Survey System and formatted for SPSS, Version 22 for analysis.

This survey instrument was designed to determine whether there were differences in practice, perceptions, and implementation regarding blended and online courses in traditional school districts. Two comparisons were made: one comparison between blended and online courses (Wilcoxon test); and one comparison between rural school district and urban, fringe of a large city school district (UFLD) responses (Mann-Whitney *U* test and a two proportion *z*-test). To compare these two types of courses (blended and online), statistical analyses were completed

on questions that were verbatim (with the exception that one question referred to blended courses, and one question referred to online courses). Additionally, Mann-Whitney *U* tests were completed to compare responses of participants representing "Rural" school districts with those representing "Urban, Fringe of a Large District" (Pennsylvania Department of Education, 2013). Additionally, to determine whether school districts' MVAR related to findings, a Spearman's rho test was completed.

If the number of participants and responses warranted an analysis of variance among superintendents of school districts that implemented online, both blended and online, and neither blended nor online programs, a Kruscal-Wallis one-way analysis of variance was run in SPSS. The Kruscal-Wallis one-way analysis of variance compared more than two independent, non-related samples (Kruscal & Wallis, 1952). A limitation of this non-parametric method was that it did not identify where or how many differences occurred; however, it did indicate that there was a difference among the participating groups (Kruscal & Wallis, 1952).

The researcher used data from the paired *t*-tests to provide a narrative comparison for each question and situated the data within the disruptive innovation theoretical framework. For Research Question One, the narrative comparison considered whether districts were providing blended and/or online courses for students who reside outside the districts' geographic boundaries, were participating in blended and online courses offered by entities outside their district's boundaries, were using blended or online courses to provide learning opportunities beyond their traditional school curriculum (i.e., Advanced Placement courses, credit recovery, elective courses), and were implementing blended learning models associated with disruptive innovations or those associated with sustaining innovations.

For Research Question Two, the researcher used data from the paired *t*-tests (and the Kruscal-Wallis tests) to provide a narrative comparison between blended and online programs that considered whether the reasons for implementing blended and/or online learning provided course options that were not previously available to students or provided blended and online options to particular student groups (i.e., credit recovery, Advanced Placement).

For Research Question Three, the researcher used data from the paired *t*-tests (and the Kruscal-Wallis) to provide a narrative comparison between blended and online programs that considered how participants' identified barriers contributed to blended and online programs being implemented as disruptive or sustaining innovations.

For Research Question Four, the researcher used data from the paired *t*-tests (and the Kruscal-Wallis) to provide a narrative comparison between blended and online programs that considered how participants' identified benefits contributed to blended and online programs being implemented as disruptive or sustaining innovations.

Data was saved on a USB storage drive and stored in a locked box in the researcher's home for five years.

3.8 CONCLUSION

This study explored the nature of blended and online programs implemented in traditional school districts of three counties in southwestern Pennsylvania, the reasons blended and online programs were implemented in traditional school districts of three counties in southwestern Pennsylvania, the barriers to implementing blended and online programs in traditional school districts of three counties in southwestern Pennsylvania, and the benefits of implementing

blended and online programs in traditional school districts of three counties in southwestern Pennsylvania through a disruptive innovation theoretical framework. Narrative comparisons resulting from descriptive statistics, Mann-Whitney *U* tests, Wilcoxon tests, two proportion *z*-tests, and Kruskal-Wallis one-way analysis of variance, will be presented in subsequent chapters.

4.0 FINDINGS

The goals of this study were to describe the nature of blended and online learning, determine the reasons school districts implement blended and online learning, and identify the barriers and benefits faced by district superintendents of traditional school districts to implementing blended and online learning. As indicated in the previous chapter, a power analysis indicated that for an alpha level of 0.05, a sample size of at least 24 was necessary. Because 24 of 25 superintendents invited to participate in the research study completed the survey instrument, this power analysis threshold was met.

Prior to the analysis, the data were assessed for assumptions of normality. A normality test was run in SPSS, Version 22, to determine whether the data had a normal distribution. Because the data did not meet the normal distribution threshold, nonparametric measures were used in addition to descriptive statistics. As explained in the previous chapter, nonparametric tests are suitable for research problems that use one or more variables measured on an ordinal or nominal scale (Green & Salkind, 2008).

4.1 PARTICIPANT CHARACTERISTICS

Twenty-four of twenty-five superintendents of traditional school districts located in three rural counties participated in the research study, which is a 96 percent response rate. Districts have

been classified as *rural* (*n* =13); *urban, fringe of a large district* (*n* =10), and *small town* (*n* = 1). Districts' market value aid ratios range from a low of .3903 to a high of .7748. Student enrollment ranges from 588 students to 4988 students served in kindergarten through twelfth grade. All districts are traditional school districts; charter schools and nonpublic schools were not included in this study. Table A provides a summary of districts' demographic information.

Table A

Demographic Information Regarding Participants' School Districts

School District	SD Miles^2	Population	Enrollment	Metropolitan Area	MVAR
A	141.6	25,340	3531	Rural	.7748
B	72.7	4495	588	Rural	.6363
C	59.2	8640	1191	Rural	.6860
D	55.1	9305	1246	Rural	.7401
E	56.6	15,085	1760	UFLD*	.7748
F	106.9	10,155	1307	Rural	.6782
G	34.6	10,380	940	Rural	.6774
H	56.2	28,375	4988	UFLD	.4584
I	39.1	7120	1126	Rural	.7747
J	169.8	16,700	1902	Small Town	.6380
K	24.9	8470	1155	UFLD	.5212
L	216.8	38,310	4648	UFLD	.7300
M	57.9	8885	1143	Rural	.5892
N	59.4	8825	1211	Rural	.6715
O	47.5	6140	810	Rural	.7124
P	55.5	25,425	3275	UFLD	.6546
Q	198.4	13,695	1865	Rural	.6118
R	19.8	17,565	4359	UFLD	.3903
S	55.3	26,935	2948	UFLD	.6267
T	68.5	4790	608	Rural	.7217
U	90.3	25,590	3332	UFLD	.5011
V	250.1	26,920	2818	UFLD	.6480
W	3.4	17,240	1507	UFLD	.6660
X	253.0	5920	799	Rural	.3556

*UFLD = Urban, Fringe of a Large District (Pennsylvania Department of Education, 2013)

Differences in student demographics focus on the percentages of students who are economically disadvantaged (from 4.13 percent to 63.98). Variances regarding students with IEPS, and ethnicities were minimal. Table B summarizes the demographics of the student populations for each participating district.

Table B

Student Population Demographics

School District	% ED	% IEP	% White	% Black	% Hispanic	% Multi-Racial
A	59.13	20.19	93.43	3.79	.59	1.90
B	42.69	19.89	95.41	2.38	.68	1.53
C	39.14	14.94	93.79	1.68	1.26	2.52
D	43.90	18.53	95.59	.80	.72	2.73
E	63.98	19.48	82.84	14.72	.51	1.76
F	35,04	20.12	96.79	.92	.54	1.38
G	42.45	16.59	93.51	5.96	.00	.11
H	22.98	14.07	90.68	4.09	1.12	2.89
I	46.63	18.29	96.71	.36	1.42	.71
J	42.74	21.03	97.37	1.21	.42	.21
K	36.54	17.40	89.70	3.72	2.16	3.90
L	58.78	19.36	95.20	1.61	.75	2.07
M	32.98	15.74	95.45	2.10	.44	1.49
N	34.02	12.96	97.61	.99	.25	.25
O	46.54	17.77	96.54	2.96	.00	.00
P	51.94	15.81	89.74	7.91	.64	.79
Q	35.6	15.01	97.16	.59	.38	1.23
R	4.13	10.13	93.39	.55	1.7	1.35
S	39.65	16.82	88.33	5.56	1.05	4.55
T	53.95	19.24	98.19	1.81	.00	.00
U	26.56	16.05	94.03	2.64	1.23	1.44
V	59.16	18.06	77.79	17.21	.92	3.62
W	67.82	15.99	57.40	26.94	2.72	12.48
X	48.31	17.89	98.25	.63	.63	.00

(Pennsylvania Department of Education, 2013)

4.2 THE NATURE OF BLENDED AND ONLINE LEARNING

This section shares findings regarding the nature of blended and online learning by considering the districts having students enrolled in blended and online courses, the grade level ranges of students served through blended and online courses, the type of courses districts offer via blended and online learning, the providers of online and blended courses, models of blended learning being implemented, and projections for blended and online learning. Respondents included 13 superintendents of rural school districts (54.17 percent); 10 superintendents of urban, fringe of a large district (UFLD) school districts (41.67 percent); and one superintendent of a small-town school district (4.17 percent). Additional information regarding participating districts' demographics was included in the previous section. Figure 19 provides a summary of the key findings regarding the nature of blended and online learning.

4.2.1 Blended and Online Course Enrollment

The majority of districts represented in this study implemented online courses only (76.19 percent) and no districts implemented only blended courses. To determine how many districts had students enrolled in blended courses only, online courses only, both blended and online courses, and neither blended nor online courses, data were downloaded to an Excel spreadsheet from Qualtrics, and counts were determined by sorting participants' responses, indicating that none of the responding school districts had students enrolled in blended courses only, 16 had students enrolled in online courses only (76.19 percent), five had students enrolled in both blended and online courses (23.81 percent); and three did not have students enrolled in either

blended or online learning (14.29 percent). Table C provides information regarding the types of programs (neither, online only, and both) associated with the metropolitan area (rural, UFLD, or small town). Overall, the majority of participants had students who enrolled in online courses (*n* =16, .6667), and few districts had zero students enrolled in neither blended nor online courses (*n* = 3, .1250).

Table C

Blended and Online Enrollment Summary

	Neither *n* = 3			Online Only *n* = 16			Both *n* = 5		
	n	% *n* = 3	% *n* = 24	*n*	% *n* = 16	% *n* = 24	*n*	% *n* = 5	% *n* = 24
Rural (*n*)	1	33.33	4.17	11	68.75	45.83	1	20.00	4.17
UFLD (*n*)	2	66.67	8.33	3	18.75	12.50	4	80.00	20.83
Small Town (*n*)	0	0	0	1	6.25	4.17	0	0	0

4.2.2 Blended and Online Course Enrollment by Nature of Course

To describe the types of blended courses taken by students in traditional school districts, the frequency of responses for each course type was determined by performing a column sort on the downloaded data file. To maintain consistency with responses throughout the survey instrument, five of ten responses were removed from the data analysis.

After tallying the number of responses for each course type, responses were divided between rural and UFLD school districts, and a two proportion *z*-test was completed to test two sample proportions. One variable was close to statistical relevance, *remedial course.* A larger proportion of UFLD school districts had students take blended courses for remediation than rural

school districts. Table D provides a proportional comparison regarding the nature of blended courses taken by students is rural and UFLD traditional school districts.

Table D

Nature of Blended Courses Taken by Students in Traditional School Districts

Nature of Blended Course	Rural		UFLD			
$n = 5$	$n = 1$		$n = 4$		p-value	z-value
	n	%	n	%		
Required course	0	0	2	.50	.136037128	-1.49071
Elective course	0	0	2	.50	.136037128	-1.49071
Keystone Exam -aligned course	0	0	2	.50	.136037128	-1.49071
Remedial course	0	0	3	.75	.060289174	-1.87867
Credit recovery course	1	.20	2	.50	.439339594	-.77331
Other	1	.20	0	0	.361310429	0.912871

Although the study found a greater proportion of rural students taking Advanced Placement courses as online courses, students in UFLD school districts were more likely to take required courses, Keystone Exam-aligned courses, and remedial courses online, than their neighboring peers in rural schools. To describe the types of online courses taken by students in traditional school districts, the frequency of responses for each course type was determined by performing a column sort on the downloaded data file.

After tallying the number of responses for each course type, responses were divided between rural and UFLD school districts (the response representing a small town was eliminated), and a two proportion *z*-test was completed to test two sample proportions. Several variables indicate statistical significance ($p < .05$). A larger proportion of UFLD school districts had students take online courses as required courses ($p = .0000446531$), Keystone Exam-aligned courses ($p = .040304592$), and remedial courses ($p = .001166281$). As provided in Table E, a larger proportion of rural school districts had students take online courses as Advanced Placement courses ($p = .000260509$) and other ($p = .0000579959$).

Table E

Nature of Online Courses Taken by Students in Traditional School Districts

Nature of Online Course *n* = 21	Rural *n* = 12		UFLD *n* = 8		*p*-value	*z*-value
	n	%	*n*	%		
Required course	5	.417	7	.875	.0000446531	-4.08198
Elective course	7	.583	6	.750	.142390176	-1.46695
Keystone Exam -aligned course	5	.417	5	.625	.040304592	-2.05061
Remedial course	6	.500	7	.875	.001166281	-3.247
Credit recovery course	10	.833	7	.875	.741966967	-.32925
Advanced Placement course	7	.583	2	.250	.000260509	3.651702
College credit course	1	.083	2	.250	.004244344	-2.85941
Other	2	.167	0	0	.0000579959	4.02082

4.2.3 Grade Levels Served

All districts that had students enrolled in blended programs included students enrolled in grades 9-12; however, only one district enrolled elementary students in blended courses. To determine the grade levels served in blended and online learning, data was downloaded to an Excel spreadsheet from Qualtrics, and counts were determined by sorting participants' responses. All five districts that had students enrolled in blended courses during the 2012-2013 school year had at least one student enrolled from grades nine through twelve (*n* =5, 1.00) and fewer had students enrolled in grades six through eight (*n* = 3, .60) and even fewer from kindergarten through grade five (*n* = 1, .20).

This same trend of having more students enrolled at the high school level than at younger grades continued for online course enrollments. During the 2012-2013 school year, the majority of school districts had at least one student from grades nine through twelve enrolled in an online

course (*n* = 17, .8095) and fewer had at least one student enrolled from grades six through eight (*n* = 9, .4286) and kindergarten through grade five (*n* = 5, .2381).

4.2.3.1 Grade Levels Served: Rural, UFLD

Proportionally, middle school students (grades six through eight) in UFLD school districts were more likely to enroll in blended courses than students in rural school districts. After tallying the number of responses for each grade level range, responses were divided between rural and UFLD school districts, and a two proportion *z*-test was completed to test two sample proportions. Regarding blended course enrollments, a larger proportion of UFLD school districts had students take blended courses from grades six through eight than the proportion of rural school districts did (*p* = .060289174). Table F provides additional information regarding students' enrollment in blended courses associated with their metropolitan area (rural, UFLD, small town).

Table F

Proportional Comparisons of Rural and UFLD School Districts' Blended Course Enrollments by Grade Level Ranges

Grade Level Ranges	Rural *n* = 1		UFLD *n* = 4		*p*-value	*z*-value
	n	%	*n*	%		
Grades K-5	0	.00	1	.25	.304901788	-1.02598
Grades 6-8	0	.00	3	.75	.060289174	-1.87867
Grades 9-12	1	1.00	4	1.00	1.0000000	.00000

Rural school district superintendents were more likely to indicate that elementary school students and high school students enrolled in online courses. The same proportional calculations were completed for online course enrollments. Proportionally, rural schools districts were more likely to have students from the kindergarten through grade five range enrolled in online courses (*p* = .002315467), and more likely to have students from grades 9-12 enrolled in online courses

(p = .052576202). As summarized in Table G, there was no statistical significance between the proportion of rural and UFLD school districts for online course enrollments in grades six through eight (p = . 384627203).

Table G

Proportional Comparisons of Rural and UFLD School Districts' Online Course Enrollments by Grade Level Ranges

Grade Level Ranges	Rural n = 12		UFLD n = 8		p-value	z-value
	n	%	n	%		
Grades K-5	4	.333	1	.125	.002315467	3.046469
Grades 6-8	5	.417	4	.500	.384627203	-.8694
Grades 9-12	12	1.00	6	.750	.052576202	1.938386

4.2.4 Blended and Online Course Providers

Of the districts that had students enrolled in both blended and online courses during the 2012-2013 school year, the majority of their school districts provided the instructor for the blended and online courses (n = 3, .60). In contrast, over half of the districts that had students enrolled in online classes only (n = 9, .5625) contracted with providers outside the district to provide instruction, as indicated in Table H.

Table H

Blended and Online Providers: General

		District		Provider Other Than District		Both District and Other Provider	
	n	Blended	Online	Blended	Online	Blended	Online
Both n (%)	5	3 (.60)	3 (.60)	1 (.20)	1 (.20)	1 (.20)	1 (.20)
Online n (%)	16		2 (.1250)		9 (.5625)		5 (.3125)

4.2.5 Blended and Online Providers: Rural, UFLD

To identify the types of providers districts contract with for blended and online courses, data were downloaded to an Excel spreadsheet from Qualtrics, and counts were determined by sorting participants' responses. Half of the UFLD school districts that had at least one student enrolled in a blended course during the 2012-2013 school year, provided the blended courses themselves as a school district (*n* =2, .50). None of the school districts contracted with post-secondary institutions for blended courses during the 2012-2013 school year. Table I provides additional information regarding providers serving school districts' implementation of blended courses and identifies that when reviewing provider choices, there is no significance between rural and UFLD school districts in their use of blended course providers.

Table I

Comparisons between Rural and UFLD School Districts' Blended Course Providers

Blended Course Providers	Rural *n* = 1		UFLD *n* = 4		*p*-value	*z*-value
	n	%	*n*	%		
My school district	1	1.00	2	.50	.329113986	.9759
My intermediate unit's consortium	1	1.00	1	.25	.12133525	1.549193
Another intermediate unit	0	.00	1	.25	.304901788	-1.02598
A local school district other than my own	0	. 00	2	.50	.136037128	-1.49071
Cyber charter schools	1	1.00	1	.25	.12133525	1.549193
Independent vendors	0	. 00	1	.25	.304901788	-1.02598
Other	0	. 00	1	.25	.304901788	-1.02598

With regard to online course providers, two proportional comparisons between rural and UFLD school districts were significant: *a local school district other than my own* (*p* = .000510895) and *independent vendors* (*p* = .0000125412). While UFLD school districts were proportionally more likely to contract with other local school districts than rural schools districts, rural school districts were proportionally more likely to contract with independent vendors than

UFLD school districts. Table J provides a proportional comparison between rural and UFLD school districts regarding their online course providers.

Table J

Comparisons between Rural and UFLD School Districts' Online Course Providers

Online Course Providers	Rural $n = 12$		UFLD $n = 8$		*p*-value	*z*-value
	n	%	*n*	%		
My school district	4	.333	2	.250	.279721838	1.080944
My intermediate unit's consortium	8	.667	4	.500	.118550041	1.560889
Another intermediate unit	2	.167	1	.125	.442985077	.767162
A local school district other than my own	0	.000	1	.125	.000510895	-3.47498
Cyber charter schools	5	.417	3	.375	.637039846	.471842
Post-secondary institution	2	.167	1	.125	.442985077	.767162
Independent vendors	8	.667	2	.250	.0000125412	4.36796

4.2.6 Perceptions of Blended and Online Learning

Twenty-one participants indicted that students from their districts enrolled in online courses (n = 16) or both blended and online (n = 5). To gauge participants' responses related to levels of strongest agreement, descriptive statistics were run in SPSS to identify the mean of each of seven statements regarding online learning. Of these districts (n = 21) and based on a four-point scale where 1 = *strongly disagree*; 2 = *somewhat disagree;* 3 = *somewhat agree;* and 4 = *strongly agree*; the statements with which superintendents of traditional school districts in rural counties identified the strongest agreement include: *students need more discipline to succeed in an online course than in a face-to-face course* (3.67), *students need more discipline to succeed in an online course than in a blended course* (3.48), and *online courses fill an important educational need for my district's students* (3.24). The statements with the least agreement include: *teachers in my district accept and value the legitimacy of online education* (2.38), *online courses have allowed*

my district to build important relationships with other organizations (2.48), and *state or local governing regulations encourage school districts to enroll students in online courses* (2.62). Table K provides the mean level of agreement for each of the statements regarding online learning in districts.

Table K

Mean Level of Agreement Regarding Statements about Online Learning in Districts

Reasons	Mean $n = 21$
Online courses fill an important educational need for my district's students.	3.24
State or local governing regulations encourage school districts to enroll students in online courses.	2.62
Online courses have allowed my district to build important relationships with other organizations.	2.48
Students need more discipline to succeed in an online course than in a face-to-face course.	3.67
Students need more discipline to succeed in an online course than in a blended course.	3.48
Teachers in my district accept and value the legitimacy of online education.	2.38
Administrators in my district accept and value the legitimacy of online education.	2.86

The same descriptive statistics was run for statements regarding blended learning. The statements with which superintendents of traditional school districts in rural counties identified the strongest agreement include: *blended courses fill an important educational need for my district's students* (3.33), *students need more discipline to succeed in a blended course than in a traditional face-to-face course* (3.17), and *administrators in my district accept and value the legitimacy of blended education* (3.00). The statements with the least agreement include: *state or local governing regulations encourage school districts to enroll students in blended courses* (2.50), *blended courses have allowed my district to build important relationships with other organizations* (2.50), and *students need more discipline to succeed in a blended course than in*

an online course (2.67). Table L provides the mean level of agreement for each of the statements about blended learning in school districts.

Table L

Mean Level of Agreement Regarding Statements about Blended Learning in Districts

Reasons	Mean $n = 5$
Blended courses fill an important educational need for my district's students.	3.33
State or local governing regulations encourage school districts to enroll students in blended courses.	2.50
Blended courses have allowed my district to build important relationships with other organizations.	2.50
Students need more discipline to succeed in a blended course than in a face-to-face course.	3.17
Students need more discipline to succeed in a blended course than in an online course.	2.67
Teachers in my district accept and value the legitimacy of blended education.	2.67
Administrators in my district accept and value the legitimacy of blended education.	3.00

4.2.7 Blended Learning Models

To determine the blended learning models implemented in traditional school districts, descriptive statistics were run in SPSS, Version 22. Based on a limited number of responses ($n = 6$), the majority of respondents indicated that they are implementing a flex blended learning model ($n = 4$) and a self-blend blended learning model ($n = 4$). Table M accounts for all responses.

Table M

Implemented Blended Learning Models

Blended Learning Model	*n*	%
Station Rotation	1	17
Lab Rotation	3	50
Flipped Classroom	2	33
Individual Rotation	1	17
Flex	4	67
Self-blend	4	67

Enriched-Virtual	2	33

4.2.8 Blended and Online Course Projections

When projecting expectations for online course enrollments within the next three years, that majority of superintendents projected that online course enrollments will *grow between 0 – 24%* (*n* = 13, .54). Table N provides a summary of the online course projections.

Table N

Projections for Online Course Enrollment in the Next Three Years

Projection	*n*	%
Grow between 75 – 100%	0	.00
Grow between 50 – 74 %	1	.04
Grow between 25 – 49%	4	.17
Grow between 0 – 24%	13	.54
Stay the same	4	.17
Decrease by 0 – 24%	1	.04
Decrease by 25 – 49%	1	.04
Decrease by 50 – 74%	0	.00
Decrease by 75-100%	0	.00

When projecting expectations for online course enrollments within the next three years, the majority of superintendents projected that blended course enrollments will *grow between 0 – 24%* (*n* = 14, .58). Table O provides a summary of the projections for blended course enrollments in the next three years.

Table O

Projections for Blended Course Enrollment in the Next Three Years

Projection	*n*	%
Grow between 75 – 100%	1	.04
Grow between 50 – 74 %	1	.04
Grow between 25 – 49%	3	.13

Grow between 0 – 24%	14	.58
Stay the same	5	.21
Decrease by 0 – 24%	0	.00
Decrease by 25 – 49%	0	.00
Decrease by 50 – 74%	0	.00
Decrease by 75-100%	0	.00

4.3 REASONS FOR IMPLEMENTATION

This section reports the findings associated with reasons traditional school districts in three rural counties offer blended and online courses. After reporting the descriptive statistics for the reasons of implementation, results for nonparametric tests will be shared indicating comparisons between responses regarding blended and online learning, between rural and UFLD school districts, and responses associated with districts' MVAR.

To determine the importance that participating superintendents attributed to reasons for offering online courses, descriptive statistics were completed in SPSS, Version 22 to determine the mean for each of the 12 reasons provided on the survey instrument. Options were based on a four-point scale: 4 = *very important;* 3 = *somewhat important;* 2 = *somewhat unimportant;* and 1 = *very unimportant.* The most important reasons for offering online courses, based on the means of participants' responses included: providing credit recovery options for students who previously failed courses (3.75), meeting the needs of specific groups of students (3.63), and providing access to courses otherwise unavailable as traditional courses (3.54). Least important reasons included increased access to highly qualified teachers (2.00), pedagogically more beneficial than blended courses (2.00), and pedagogically more beneficial than traditional courses (2.04). Table P provides a summary of the mean importance attributed to the various reasons for offering online courses.

Table P

Mean Importance Attributed to Reasons for Offering Online Courses

Reasons	Mean *n* = 24
Pedagogically more beneficial than traditional courses	2.04
Pedagogically more beneficial than blended courses	2.00
Address increasing student enrollment	2.58
Financially beneficial to school districts	3.21
Students' preference for online course activities over traditional coursework	2.42
Students' preference for online course activities over blended coursework	2.08
Increase access to highly qualified teachers	2.00
Provide access to courses otherwise unavailable as traditional courses	3.54
Provide access to Advanced Placement (AP) courses not otherwise available	3.13
Reduce scheduling conflicts	3.04
Meet the needs of specific groups of students	3.63
Providing credit recovery options for students who previously failed courses	3.75

To determine the importance that participating superintendents attributed to reasons for offering blended courses, descriptive statistics were completed in SPSS, Version 22 to determine the mean for each of the 10 reasons provided on the survey instrument. Options were based on a four-point scale: 4 = *very important;* 3 = *somewhat important;* 2 = *somewhat unimportant;* and 1 = *very unimportant.* As summarized in Table, the most important reasons for offering blended courses, based on the means of participants' responses included: *providing credit recovery options for students who previously failed courses* (3.46), *meeting the needs of specific groups of students* (3.35), and *providing access to courses otherwise unavailable as traditional courses* (3.00). Least important reasons included *pedagogically more beneficial than traditional courses* (2.29), *addressing increasing student enrollment* (2.33), and *pedagogically more beneficial than online courses* (2.50). Table Q provides a summary of the mean importance attributed to the various reasons for offering blended courses.

Table Q

Mean Importance Attributed to Reasons for Offering Blended Courses

Reasons	Mean *n* = 24
Pedagogically more beneficial than traditional courses	2.29
Pedagogically more beneficial than online courses	2.50
Address increasing student enrollment	2.33
Financially beneficial to school districts	2.92
Increase access to highly qualified teachers	2.71
Provide access to courses otherwise unavailable as traditional courses	3.00
Provide access to Advanced Placement (AP) courses not otherwise available	2.92
Meet the needs of specific groups of students	3.35
Reduce scheduling conflicts	2.88
Providing credit recovery options for students who previously failed courses	3.46

4.3.1 Importance of Implementation

A Wilcoxon test was conducted to evaluate whether participants viewed reasons for implementing blended courses or online courses as more important than the other. The results indicated a significant difference for the following reasons: *meeting a shortage of highly qualified teachers* (z = -2.380, p = .017), *access to courses otherwise unavailable as traditional courses* (z = -2.696, p = .007), and *providing credit recovery courses* (z = -2.333, p = .020). The mean of the ranks in favor of blended courses meeting the shortage of highly qualified teachers was 5.50, while the mean of the ranks in favor of online courses meeting the shortage of highly qualified teachers was 10.46. The mean of the ranks in favor of blended courses providing access to courses otherwise unavailable as traditional courses was 7.75, while the mean of the ranks in favor of online courses meeting the shortage of highly qualified teachers was 6.00. The mean of the ranks in favor of blended courses providing credit recovery courses was 3.50, while

the mean of the ranks in favor of online courses meeting the shortage of highly qualified teachers was 0.00.

Although not significant, *meeting the needs of specific groups of students* was marginally close to significance (z = -1.897, p = 0.058). The mean of the ranks in favor of blended courses meeting the needs of specific groups of students was 4.08, while the mean of the ranks in favor of online courses meeting the shortage of highly qualified teachers was 3.50.

The remaining reasons, *being more pedagogically beneficial than traditional courses* (z = -1.540, p = .124), *addressing increasing student enrollment* (z = -1.182, p = .247), *financial benefit to school districts* (z = -1.732, p = .083), *access to otherwise unavailable Advanced Placement or other college-level courses* (z = -1.184, p = .236), and *reducing scheduling conflicts* (z = -.771, p = .441) were not significant. Table R summarizes these findings.

Table R

Results of the Wilcoxon Test to Determine Whether Reasons for Implementing Blended or Online Courses Are More Important

Reasons	*z*	*p*	Negative Ranks	Positive Ranks
More pedagogical benefit than traditional courses	-1.540	.124	7.50	4.07
Addresses increasing student enrollment	-1.182	.247	7.83	6.90
Financial benefit to school district	-1.732	.083	5.14	4.50
Meet shortage of highly qualified teachers	-2.380	.017	5.50	10.46
Access to otherwise unavailable courses	-2.696	.007	7.75	6.00
Access to otherwise unavailable AP or college-level courses	-1.184	.236	5.69	6.83
Reduces scheduling conflicts	-.771	.441	6.93	5.90
Meets the needs of specific groups of students	-1.897	.058	4.08	3.50
Provides credit recovery courses	-2.333	.020	3.50	.00

4.3.2 Importance of Implementation: Rural, UFLD

A Mann-Whitney *U* test was completed to assess whether the reasons for implementing online courses compare between rural and urban, fringe of a large district (UFLD) school districts. There is no significant difference between the reasons superintendents of rural school districts implement online courses and the reasons superintendents of UFLD school districts implement online programs, for the significance of each reason was greater than .05, as referenced in Table S.

Table S

Results of the Mann-Whitney U Test to Determine How the Reasons Superintendents of Rural and Urban, Fringe of a Large District School Districts Differ Regarding Implementation of Online Courses

Reasons	Mean Rank of Rural Districts $n = 13$	*Mean Rank of UFLD Districts* $n = 10$	*z*	*p*
More pedagogical benefit than traditional courses	10.88	13.45	-.945	.345
Addresses increasing student enrollment	11.42	12.75	-.482	.630
Financial benefit to school district	11.73	12.35	-.242	.809
Meet shortage of highly qualified teachers	11.58	12.55	-.365	.715
Access to otherwise unavailable courses	13.62	9.90	-1.520	.128
Access to otherwise unavailable AP or college-level courses	13.54	10.00	-1.339	.181
Reduces scheduling conflicts	12.92	10.80	-.787	.432
Meets the needs of specific groups of students	12.69	11.10	-.694	.488
Provides credit recovery courses	12.35	11.55	-.367	.714

A Mann-Whitney *U* test was completed to assess how the reasons for implementing online courses compare between rural and UFLD superintendents' reasons for implementing blended courses. There is no significant difference between the reasons superintendents of rural school districts implement blended courses and the reasons superintendents of UFLD school districts implement blended courses, as indicated in Table T.

Table T

Results of the Mann-Whitney U Test to Determine How the Reasons Superintendents of Rural and Urban, Fringe of a Large District School Districts Differ Regarding Implementation of Blended Courses

Reasons	Mean Rank of Rural Districts $n = 13$	*Mean Rank of UFLD Districts* $n = 10$	*z*	*p*
More pedagogical benefit than traditional courses	10.96	13.35	-.880	.379
Addresses increasing student enrollment	11.58	12.55	-.363	.717
Financial benefit to school district	11.50	12.65	-.431	.667
Meet shortage of highly qualified teachers	12.04	11.95	-.033	.974
Access to otherwise unavailable courses	12.27	11.65	-.232	.846
Access to otherwise unavailable AP or college-level courses	11.31	12.90	-.590	.555
Reduces scheduling conflicts	11.08	13.20	-.786	.483
Meets the needs of specific groups of students	10.71	12.45	-.697	.486
Provides credit recovery courses	11.00	13.30	-.902	.367

4.3.3 Importance of Implementation: MVAR

To determine whether there was a relationship between school districts' market value aid ration (MVAR) and reasons for implementing blended courses, a Spearman's rho test was completed. Correlation coefficients were computed among 10 reasons for implementing blended courses. The results of the correlational analyses presented in Table U show that one out of 10 reasons was statistically significant: *providing credit recovery options for students who previously failed courses* (r_s = -.455, p = .025). The remaining reasons yielded no statistical significance: *pedagogically more beneficial than traditional courses* (p = .598); *pedagogically more beneficial than online courses* (p = .753); *address increasing student enrollment* (p = .893); *financially beneficial to school districts* (p = .946); *increase access to highly qualified teachers* (p =.980); *provide access to courses otherwise unavailable as traditional courses* (p = .898); *provide access to Advanced Placement (AP) courses not otherwise available* (p = .343*); meet the needs of specific groups of students* (p = .112); and *reduce scheduling conflicts* (p = .153). In general this indicates that the higher a school district's MVAR, the greater the tendency for superintendents of those districts to indicate importance in providing credit recovery courses as a reason for implementing blended courses.

Table U

Spearman's rho Correlation Coefficients for MVAR and Reasons for Offering Blended Courses

Reasons	MVAR (r_s)	p
Pedagogically more beneficial than traditional courses	.113	. 598
Pedagogically more beneficial than online courses	-.068	.753
Address increasing student enrollment	-.029	.893
Financially beneficial to school districts	.015	.946
Increase access to highly qualified teachers	.005	.980
Provide access to courses otherwise unavailable as traditional courses	-.028	.898
Provide access to Advanced Placement (AP) courses not	.202	.343

otherwise available		
Meet the needs of specific groups of students	-.341	.112
Reduce scheduling conflicts	-.301	.153
Providing credit recovery options for students who previously failed courses	-.455*	.025

To determine whether there was a relationship between school districts' market value aid ration (MVAR) and reasons for implementing online courses, a Spearman's rho test was completed. Correlation coefficients were computed among 12 reasons for implementing online courses. The results of the correlational analyses presented in Table V show that two out of 12 reasons were statistically significant: *meeting the needs of specific groups of students* (r_s = -.496, p = .014); and *providing credit recovery options for students who previously failed courses* (r_s = -.584, p = .003). The remaining reasons yielded no statistical significance: *pedagogically more beneficial than traditional courses* (p = .329); *pedagogically more beneficial than blended courses* (p = .159); *address increasing student enrollment* (p = .132); beneficial to school districts (p = .575); *students' preference for online course activities over traditional coursework* (p = .984); *students' preference for online course activities over blended coursework* (p = .273); *increase access to highly qualified teachers* (p =.382); *provide access to courses otherwise unavailable as traditional courses* (p = .743); *provide access to Advanced Placement (AP) courses not otherwise available* (p = .206); and *reduce scheduling conflicts* (p = .481). In general this indicates that the higher a school district's MVAR, the greater the tendency for superintendents of those districts to indicate the importance of providing credit recovery courses as a reason for implementing blended courses.

Table V

Spearman's rho Correlation Coefficients for MVAR and Reasons for Offering Online Courses

Reasons	MVAR (r_s)	p

Pedagogically more beneficial than traditional courses	.208	.329
Pedagogically more beneficial than blended courses	.297	.159
Address increasing student enrollment	.316	.132
Financially beneficial to school districts	.120	.575
Students' preference for online course activities over traditional coursework	-.004	.984
Students' preference for online course activities over blended coursework	.233	.273
Increase access to highly qualified teachers	.187	.382
Provide access to courses otherwise unavailable as traditional courses	-.071	.743
Provide access to Advanced Placement (AP) courses not otherwise available	.268	.206
Reduce scheduling conflicts	-.151	.481
Meet the needs of specific groups of students	-.496*	.014
Providing credit recovery options for students who previously failed courses	-.584**	.003

*. Correlation is significant at the .05 level.
**. Correlation is significant at the .01 level.

4.3.4 Importance of Implementation: Neither, Online, Both

A Kruskal-Wallis test was conducted to evaluate differences among districts that had students enrolled in online courses (n =16), districts that had students enrolled in both blended and online courses (n = 5), and districts that had students enrolled in neither blended nor online courses (n = 3), regarding reasons school districts offer online courses. As Table W summarizes, the outcome of the test indicated no statistical significance among the three groups.

Table W

*Kruskal-Wallis Results for Differences among Districts with Students Enrolled in Online Courses, Both Blended and Online Courses, or Neither Blended nor Online Courses Regarding Reasons for Offering Blended Courses**

Reasons	X^2	p
Pedagogically more beneficial than traditional courses	3.013	.222
Pedagogically more beneficial than blended courses	2.645	.266
Addresses increasing student enrollment populations	1.108	.575

Financially beneficial to school districts	.129	.937
Students' preference over traditional courses	1.572	.456
Students' preference over blended courses	2.072	.355
Meet a shortage of highly qualified teachers	1.204	.548
Provide courses otherwise unavailable as traditional courses	1.563	.458
Offer AP or college-level courses	3.082	.214
Reduce scheduling conflicts	.549	.760
Meet needs of specific groups of students	.289	.866
Provide credit recovery options	1.342	.511

* $n = 24$, $df = 2$

A Kruskal-Wallis test was conducted to evaluate differences among districts that had students enrolled in online courses (n =16), districts that had students enrolled in both blended and online courses (n = 5), and districts that had students enrolled in neither blended nor online courses (n = 3), regarding reasons school districts offer blended courses. As Table X summarizes, the outcome of the test indicated no statistical significance among the three groups.

Table X

*Kruskal-Wallis Results for Differences among Districts with Students Enrolled in Online Courses, Both Blended and Online Courses, or Neither Blended nor Online Courses Regarding Reasons for Offering Blended Courses**

Reasons	X^2	p
Pedagogically more beneficial than traditional courses	1.656	.437
Pedagogically more beneficial than online courses	.183	.913
Addresses increasing student enrollment populations	3.418	.181
Financially beneficial to school districts	.174	.917
Meet a shortage of highly qualified teachers	1.540	.463
Provide courses otherwise unavailable as traditional courses	1.965	.374
Offer AP or college-level courses	2.470	.291
Meet needs of specific groups of students	1.554	.460
Reduce scheduling conflicts	.841	.657
Provide credit recovery options	2.402	.301

* $n = 24$, $df = 2$

The next section reports the findings regarding barriers to implementing blended and online learning.

4.4 BARRIERS TO BLENDED AND ONLINE LEARNING

To identify the significance of barriers to offering online courses, descriptive statistics was run in SPSS, Version 22 to determine the mean for each reason. The mean is based on a four-point scale: 1 = *significant barrier*, 2 = *barrier*, 3 = *minor barrier*, 4 = *not a barrier*; therefore, the lower the mean, the greater the barrier, as provided by participants (n = 24). Table Y provides the mean for each of the eight barriers included on the survey instrument. Participants identified the greatest barriers to offering online courses as *concerns about course quality* (2.29), *online course development* (2.58), and *the need for professional development of existing staff members* (2.71). The least significant barriers included *limited technology skills of building administrators* (3.33), *limited technological infrastructure* (3.08), and *purchasing online content* (3.04).

Table Y

Mean Significance of Barriers to Offering Online Learning

Barriers	Mean (n = 24)
Online course development	2.58
Purchasing online course content	3.04
Limited technological infrastructure	3.08
Concerns about course quality	2.29
Restrictive federal, state, and local laws or policies	2.96
Limited technology skills of teachers	2.96
Limited technology skills of building administrators	3.33
The need for professional development of existing staff members	2.71

To identify the significance of barriers to offering blended courses, descriptive statistics was run in SPSS, Version 22 to determine the mean for each reason. The mean is based on a four-point scale: 1 = *significant barrier,* 2 = *barrier,* 3 = *minor barrier,* 4 = *not a barrier*; therefore, the lower the mean, the greater the barrier, as provided by participants (n = 23). Table Z provides the mean for each of the eight barriers included on the survey instrument. Participants identified the greatest barriers to offering blended courses as *blended course development* (2.48), *concerns about course quality* (2.48), and *the need for professional development of existing staff members* (2.74). The least significant barriers included *limited technology skills of building administrators* (3.39); restrictive federal, state, and local laws and policies (3.00); and *limited technological infrastructure* (2.96).

Table Z

Mean Significance of Barriers to Offering Blended Learning

Barriers	Mean (n = 23)
Blended course development	2.48
Purchasing online course content for a blended course	2.87
Limited technological infrastructure	2.96
Concerns about course quality	2.48
Restrictive federal, state, and local laws or policies	3.00
Limited technology skills of teachers	2.87
Limited technology skills of building administrators	3.39
The need for professional development of existing staff members	2.74

4.4.1 Barriers for Districts: MVAR

To determine whether there was a relationship between school districts' market value aid ratio (MVAR) and barriers to implementing online courses in traditional school districts, a Spearman's rho test was completed. Correlation coefficients were computed among eight

barriers to implementing online courses. The results of the correlational analyses presented in Table AA show that one out of eight barriers was statistically significant: *purchasing online course content* (r_s = -.495, p = .014). This suggests that the higher a school district's MVAR is, the greater the barrier that *purchasing online content* presents. None of the remaining barriers: *online course development* (p = .258); *limited technology infrastructure* (p = .057); *concerns about course quality* (p = .329); *restrictive federal, state, and local laws or policies* (p = .287); *limited technology skills of teachers* (p = .900); *limited technology skills of administrators* (p = .757); and the *need for professional development of existing staff members* (p = .139), was statistically significant.

Table AA

Spearman's rho Correlation Coefficients for MVAR and Barriers to Online Courses

Barriers	MVAR (r_s)	p
Online course development	-.241	.258
Purchasing online course content	-.495*	.014
Limited technological infrastructure	-.393	.057
Concerns about course quality	.208	.329
Restrictive federal, state, and local laws or policies	-.227	.287
Limited technology skills of teachers	-.027	.900
Limited technology skills of building administrators	.067	.757
The need for professional development of existing staff members	-.311	.139

*p < .05

To determine whether there was a relationship between school districts' market value aid ratio (MVAR) and barriers to implementing blended courses in traditional school districts, a Spearman's rho test was completed. Correlation coefficients were computed among eight barriers to implementing blended courses. The results of the correlational analyses presented in Table BB show that two out of eight barriers were statistically significant: *purchasing online content for a blended course* (r_s = -.474, p = .022) and *the need for professional development* (r_s

= -.517, p = .012). This suggests that the higher a school district's MVAR is, the greater the barriers of purchasing online content for blended courses and the need for professional development present to offering blended courses. None of the remaining barriers: *blended course development* (p = .076); *limited technology infrastructure* (p = .227); *concerns about course quality* (p = .807); *restrictive federal, state, and local laws or policies* (p = .554); *limited technology skills of teachers* (p = .205); and *limited technology skills of administrators* (p = .776) was statistically significant. Table G provides a summary of the correlation coefficients for MVAR and barriers to blended courses.

Table BB

Spearman's rho Correlation Coefficients for MVAR and Barriers to Blended Courses

Barriers	MVAR (r_s)	p
Blended course development	-.377	.076
Purchasing online content for blended courses	0.474*	.022
Limited technological infrastructure	-.262	.227
Concerns about course quality	.054	.807
Restrictive federal, state, and local laws or policies	-.130	.554
Limited technology skills of teachers	-.274	.205
Limited technology skills of building administrators	-.063	.776
The need for professional development of existing staff members	-.517*	.012

*$p < .05$

4.4.2 Barriers for Districts: Neither, Online, Both

4.4.2.1 Online

A Kruskal-Wallis test was conducted to evaluate differences among districts that had students enrolled in online courses (n =16), districts that had students enrolled in both blended and online courses (n = 5), and districts that had students enrolled in neither blended nor online courses (n =

3), regarding barriers to districts offering online courses. As Table CC summarizes, the outcome of the test indicated statistical significance for *online course development* (p = .022) and *purchasing online content* (p = .029).

Table CC

*Kruskal-Wallis Results for Differences among Districts with Students Enrolled in Online Courses, Both Blended and Online Courses, or Neither Blended nor Online Courses Regarding Barriers to Offering Online Courses**

Barriers	X^2	p
Online course development	7.632	.022
Purchasing online content	7.105	.029
Limited technology infrastructure	2.200	.333
Concerns about course quality	.494	.781
Restrictive federal, state, and local laws or policies	1.867	.393
Limited technology skills of teachers	.036	.982
Limited technology skills of building administrators	.803	.669
Professional development needs	2.277	.320

* n = 24, df = 2

To determine which pairs of groups differ, three additional tests were completed. After completing Mann-Whitney *U* tests for each pair (online and neither, online and both, and both and neither), the districts with students in online courses and districts with students enrolled in both blended and online courses account for the significance regarding online course development (p = .009). Two pairings: districts with students in online courses and students in both blended and online courses (p = .019), and districts with students in neither blended nor online and both blended and online courses (p = .036), account for statistical significance associated with *purchasing online content*. Summaries of these findings by grouping, are available in Tables DD-FF.

Table DD

Results of Mann-Whitney U Test Pairings: Districts with Students in Neither Blended nor Online and Districts with Students in Online Only

Barriers	Mean Rank Neither *n* = 3	Mean Rank Online Only *n* = 16	*z*	*p*
Online course development	12.17	9.59	-.772	.440
Purchasing online content	9.33	10.13	-.235	.814

Table EE

Results of Mann-Whitney U Test Pairings: Districts with Students in Both Blended and Online Courses and Districts with Students in Online Courses Only

Barriers	Mean Rank Both *n* = 5	Mean Rank Online Only *n* = 16	*z*	*p*
Online course development	17.10	9.09	-2.626	.009
Purchasing online content	16.50	9.28	-2.443	.015

Table FF

Results of Mann-Whitney U Test Pairings: Districts with Students in Neither Blended nor Online Courses and Districts with Students in Both Blended and Online Only

Barriers	Mean Rank Neither *n* = 3	Mean Rank Both *n* = 5	*z*	*p*
Online course development	2.67	5.60	-1.796	.072
Purchasing online content	2.00	6.00	-2.582	.010

4.4.2.2 Blended

A Kruskal-Wallis test was conducted to evaluate differences among districts that had students enrolled in online courses (*n* =16), districts that had students enrolled in both blended and online courses (*n* = 5), and districts that had students enrolled in neither blended nor online courses (*n* =

3), regarding barriers to districts offering blended courses. As Table GG summarizes, the outcome of the test indicated statistical significant for *blended course development* (p = .020) and *restrictive federal, state, and local laws or policies* (p = .044).

Table GG

*Kruskal-Wallis Results for Differences among Districts with Students Enrolled in Online Courses, Both Blended and Online Courses, or Neither Blended nor Online Courses Regarding Barriers to Offering Blended Courses**

Barriers	X^2	p
Blended course development	7.776	.020
Purchasing online content	4.158	.125
Limited technology infrastructure	1.693	.429
Concerns about course quality	2.493	.287
Restrictive federal, state, and local laws or policies	6.237	.044
Limited technology skills of teachers	.527	.768
Limited technology skills of building administrators	2.385	.303
Professional development needs	2.310	.315

* n = 24, df = 2

To determine which pairs of groups differ, three additional tests were completed. After completing Mann-Whitney *U* tests for each pair (online and neither, online and both, and both and neither), the districts with students in online courses and districts with students enrolled in both blended and online courses account for the significance (p = .008) regarding blended course development. Two pairings: districts with students in online courses and students in both blended and online courses (p = .021), and districts with students in neither blended nor online and both blended and online courses (p = .040), account for statistical significance associated with *restrictive federal, state, and local laws and policies*. Summaries of these findings by grouping, are available in Tables HH-JJ.

Table HH

Results of Mann-Whitney U Test Pairings: Districts with Students in Neither Blended nor Online and Districts with Students in Online Only

Barriers	Mean Rank Neither $n = 3$	Mean Rank Online Only $n = 16$	z	p
Blended course development	12.17	8.97	-1.018	.309
Restrictive federal, state, and local laws and policies	10.00	9.40	-.203	.839

Table II

Results of Mann-Whitney U Test Pairings: Districts with Students in Both Blended and Online Courses and Districts with Students in Online Courses Only

Barriers	Mean Rank Both $n = 5$	Mean Rank Online Only $n = 16$	z	p
Blended course development	16.20	8.60	-2.642	.008
Restrictive federal, state, and local laws and policies	15.40	8.87	-2.300	.021

Table JJ

Results of Mann-Whitney U Test Pairings: Districts with Students in Neither Blended nor Online Courses and Districts with Students in Both Blended and Online Only

Barriers	Mean Rank Neither $n = 3$	Mean Rank Both $n = 5$	z	p
Blended course development	3.00	5.40	-1.549	.121
Restrictive federal, state, and local laws and policies	2.50	5.70	-2.049	.040

4.5 CHAPTER SUMMARY

This chapter reported the findings associated with the nature of blended and online learning in traditional school districts of three rural counties in southwestern Pennsylvania. In addition to the types of course enrollments, grade levels of participation, providers of blended and online courses, and models of blended learning implemented in school districts, this chapter also shared findings associated with the reasons for implementing blended and online courses, barriers to implementing blended and online courses, and benefits of blended and online learning.

Analyzing the nature of blended learning yielded the following statistically significant findings: a larger proportion of UFLD school districts had more students who took blended courses for remediation than rural school districts did; and a larger proportion of UFLD school districts had students from grades 6-8 take blended courses than the proportion of rural school districts did.

Analyzing the nature of online learning yielded the following statistically significant findings: a larger proportion of UFLD school districts had students take online courses as required courses than rural school districts did; a larger proportion of rural school districts had students take online courses as Advanced Placement courses than UFLD school districts did. Proportionally, rural school districts were more likely to have students from elementary (K-5) enrolled in online courses and more likely to have students enrolled in online courses from high school students (9-12) than UFLD school districts were.

Analysis of the reasons for implementing blended and online learning yielded the following statistically significant findings: participants identified *meeting a shortage of highly qualified teachers* as more important for implementing blended learning than for implementing online learning; participants identified *access to courses otherwise unavailable as traditional*

courses and *providing credit recovery courses* as more important reasons for offering online courses than reasons for offering blended courses. Additionally, the higher a district's MVAR is, the more important the reason for offering blended courses to provide *credit recovery options* is, and the more important the reasons for offering online learning to *meet the needs of specific groups of students* and *provide credit recovery options* are.

Lastly, the following statistically significant findings regarding barriers to implementing blended and online learning included: the higher a district's MVAR, the greater the barrier to purchasing online content for online courses, purchasing online content for blended courses, and the need for professional development of existing staff are. Additionally, among the three groupings (online only, both blended and online, and neither blended nor online), online course development was a statistically significant barrier for the online only and both district comparison; this same grouping was statistically significant for blended course development and restrictive federal, state, and local laws and policies as barriers to implementing blended programs.

The final chapter provides conclusions from an analysis of data.

5.0 DISCUSSION

5.1 SUMMARY OF PURPOSE

Annual reports indicate that single-district blended learning programs account for the fastest-growing form of online learning (Watson et al., 2013). However, research regarding blended and online learning for school-age children is limited. This study used a survey instrument, modified from the previously published Picciano and Seaman (2009) survey instrument to investigate the nature of blended and online programs, reasons traditional school districts implement blended and online programs, and the barriers and benefits to implementing blended and online learning in traditional school districts of three rural counties in southwestern Pennsylvania. This study adds to the blended and online learning research base by providing a descriptive account of blended and online programs in traditional public school districts in three rural counties of southwestern Pennsylvania.

5.2 SUMMARY OF PROCEDURES

A total of 24 superintendents of traditional school districts participated in the study, representing rural; urban, fringe of a large district; and small-town school districts. Because literature documented the benefits and potential barriers that rural districts experience by implementing

blended and online learning (Watson et al. 2004, 2010; Wood, 2005), a purposeful sample that included traditional school district superintendents leading rural school districts was selected. Twenty-five superintendents of traditional school districts from three rural counties in Pennsylvania were asked to participate; 24 of 25 participated in the research study. One superintendent declined to participate in the research study because he was not the superintendent during the 2012-2013 school year, which was being assessed through the survey instrument. All superintendents leading school districts in these three counties were asked to participate.

5.2.1 Demographics of Participants' School Districts

The previous chapter described the demographics of participating school districts. In particular, Table A summarized the demographics of the school districts (MVAR, metropolitan area, population, miles^2, and district enrollment), and Table B summarized the demographics of students in the participating school districts (percentages of students who are economically disadvantaged, students with IEPs, and ethnicity). Several tests used districts' MVAR and metropolitan areas to measure differences and understand statistical significance.

5.2.2 Survey Instrument

The 14-item survey instrument was slightly modified from the survey instrument used in a previous national survey of district leaders regarding blended and online learning (Picciano & Seaman, 2009). In addition to the sample size difference, revisions included a revised date for requested information; updated definitions of blended and online learning; modified scales in

number, descriptors, and in some cases content; and an additional question to determine the blended learning models being implemented in traditional school districts. Additionally, this study used a web-based survey service (Qualtrics), which was not used in the previous survey distribution. Detailed revisions are available in Appendix A.

Nine superintendents were invited to participate in the research study during a face-to-face meeting prior to survey distribution; the remaining superintendents were invited via telephone, again, prior to survey distribution. After all participants were invited, the survey was distributed via Qualtrics Survey Service and remained active for two weeks. During the first week of the survey, a reminder email was sent to non-responding participants. During the second week of the survey, phone calls were made to non-responding participants.

Data were downloaded from Qualtrics and formatted for SPSS, Version 22 for analysis. A normality test was run in SPSS, Version 22, to determine whether the data had a normal distribution. Because the data did not meet the normal distribution threshold, nonparametric measures were used in addition to descriptive statistics.

Descriptive statistics was run for each question to facilitate analysis of nonparametric tests: Kruscal-Wallis, Wilcoxon, Mann-Whitney *U*.

5.3 SUMMARY OF FINDINGS

This study had four primary research questions:

1. What is the nature of blended and online learning programs in traditional school districts of three counties in southwestern Pennsylvania?

2. Why do traditional school districts of three counties in southwestern Pennsylvania implement blended and online programs?
3. According to school district superintendents, what are the barriers to implementing blended and online programs in school districts of three counties in southwestern Pennsylvania?
4. According to school district superintendents, what are the benefits to implementing blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?

5.4 FINDINGS RELATED TO LITERATURE

5.4.1 Nature of Blended and Online Learning

5.4.1.1 Enrollment

While data limitations continue to plague all areas of online learning, single-district programs represent the least tracked and least understood facet of the online learning spectrum (Watson et al., 2009; Watson et al., 2010, 2011, 2012, 2013). Although numerous studies indicate that single-district blended learning programs are the fastest growing type of online learning (Bailey & Martin, 2013; Barbour & Ferdig, 2012; Bergmann & Sams, 2012; Horn & Staker, 2012; Staker & Horn, 2012; Tucker, 2012; Watson et al., 2013; Werth, Werth, & Kellerer, 2013), this study contradicts this finding. Picciano and Seaman (2009) reported that 41 percent of districts that participated in their national survey reported having one or more students enrolled in a blended course; however, only 20 percent of participants in this study reported having at least

one student enrolled in a blended course; this contradicts previous research literature. The majority of these traditional school districts in rural counties implement online programs, and few offer blended course options for students.

On the other hand, with over 80 percent of school districts in this study having at least one student enrolled in online courses, this study is consistent with trends indicating online learning's prevalence in school districts (Barbour, 2011; Barbour & Ferdig, 2012; Barbour & Reeves, 2009; Berman & Tinker, 1997; Cavanaugh, 2009; Cavanaugh, Barbour, & Clark, 2009; Christensen, Horn, Johnson, 2008, 2011; Watson, 2005; Watson, Gemin, & Ryan, 2008; Watson et al., 2009; Watson et al., 2010; Watson, 2007; Watson et al., 2004; Watson et al., 2011, 2012, 2013; Wicks, 2010). Some studies conservatively estimate that only half of all school districts offer blended or online learning programs (Watson et al., 2010; NCES, 2011); with 87.5 percent of districts with online or blended and online programs, the current study exceeds this moderate estimate.

Grade Levels

Nationally, only three states fail to provide supplemental online options for high school students; however, 19 states neglect to offer supplemental online options for middle school students, and 45 states fail to do the same for their youngest elementary school-age learners (Watson et al., 2013). The studied online programs, which are supplemental or fully online in nature, primarily serve high school students and some middle school student populations; however, some school districts are beginning to create online and blended options for elementary students, as well (Horn & Staker, 2011; NCES, 2011; Watson et al., 2010; Watson et al., 2012, 2013). More specifically, the majority of school districts in this research study had at least one high school student enrolled in an online course (80 percent), fewer had students enrolled from

grades six through eight (42.9 percent), and the fewest had students from elementary schools enrolled in online courses (23.8 percent). This is consistent with the national trend.

When disaggregating responses between school districts' metropolitan areas, a difference between rural school districts and UFLD school districts emerged. Rural school districts were more likely to have high school and elementary school students from their districts enrolled in online courses than UFLD school districts. This could imply that rural school districts in these three rural counties capitalize on the opportunities that online learning provides for their students to reap such benefits as offering courses not otherwise available (Berman & Tinker, 1997; Cavanaugh, Barbour, & Clark, 2009; Cavanaugh & Clark, 2007; Reid et al., 2009; Rice, 2006; Tubbs et al., 2012; Werth, Werth, & Kellerer, 2013) making Advanced Placement courses available (Berman & Tinker, 1997; Cavanaugh, Barbour, & Clark, 2009; Cavanaugh & Clark, 2007; Reid et al., 2009; Rice, 2006; Tubbs et al., 2012; Werth, Werth, & Kellerer, 2013), meeting students' credit recovery needs (Cavanaugh & Clark, 2007; Reid et al., 2009; Rice, 2006; Werth, Werth, & Kellerer, 2013), and providing flexibility in students' schedules (Barbour & Reeves, 2009; Oliver et al., 2009; Rice, 2006; Werth, Werth, & Kellerer, 2013).

5.4.1.2 Types of Courses

Blended learning promises increased access to content and extended time for personalized learning (Bailey et al., 2013; Matheos, Daniel, & McCalla, 2005); however, given the limited number of school districts included in this study that had students enrolled in blended courses, these curricular enhancements fail to be realized. More districts in this study offered blended courses for remediation purposes than any other provision, suggesting that districts are merely supplanting existing traditional courses with blended learning opportunities rather than increasing access to content (Bailey et al., 2013; Larson & Murray, 2008; Staker & Horn, 2012).

Offering blended courses for remedial student learning opportunities is one of several benefits to offering blended learning, for it increases learning time (Bailey et al., 2013; Bergmann & Sams, 2012), resources (Bailey et al., 2013; Larson & Murray, 2008; Staker & Horn, 2012), and individualized interaction between teachers and students (Bergmann & Sams, 2012).

Regarding online learning, most districts had students enrolled in online courses for credit recovery, which is a well-documented instructional benefit of online learning (Cavanaugh & Clark, 2007; Reid et al., 2009; Rice, 2006). Regardless of whether districts were classified as rural or UFLD, the majority of them had at least one student enrolled in online courses for credit recovery purposes. Accounting for credit recovery in previous studies proves to be a challenge, for online schools do not typically know if students enroll in online courses for the purpose of recovering credit (Watson & Ryan, 2007); this is a benefit to researching blended and online programs offered by traditional school districts.

Proportionally, students in UFLD school districts were more likely to enroll in online courses for remediation than students in rural school districts. While the literature documents online courses serving remedial course needs (Archambault & Crippen, 2009; Haglund, 2012; McFarlane, 2011), the frequency by which students participate for such purposes is not documented (Watson & Ryan, 2007).

5.4.1.3 Perceptions of Blended and Online Learning

Consistent with the previous study, superintendents of participating school districts strongly agree that students need more discipline to succeed in an online course than in a traditional, face –to-face course or blended course (Cavanaugh et al,. 2009; Oliver et al., 2009; Picciano & Seaman, 2009; Reid et al., 2009; SREB, 2011).

Additionally, they strongly agreed that blended and online courses meet an important educational need for districts' students (Barbour & Reeves, 2007; Berman & Tinker, 1997; Cavanaugh et al., 2009; Cavanaugh & Clark, 2007; Reid et al., 2009; Rice, 2006; Picciano & Seaman, 2009).

Low on the ranking of statements with which superintendents agreed, *state or local governing regulations encourage school districts to enroll students in online courses*, provides continued evidence that states and districts continue to struggle with restrictive or non-existent laws and policies (Barbour, 2012; Watson & Ryan, 2007; Watson et al., 2004; Watson et al., 2013).

Although many districts contracted with outside providers for blended and online content, there is a lower level of agreement that blended learning has facilitated important relationships with other organizations. This could limit administrative efficiency, which has been identified as a benefit to online learning in the literature (Barbour & Reeves, 2009; Cavanaugh et al., 2009).

5.4.1.4 Blended and Online Providers

Consistent with previous studies (Picciano & Seaman, 2007, 2009; Watson et al., 2010), participants reported contracting with multiple providers for online content. Of all the provider categories, districts offering blended courses most frequently provide courses themselves (60 percent), which nods to districts honoring the expertise of their existing educators and their face-to-face interactions with children (Niemiec & Otte, 2010; Rudi, 2012; Tucker, 2012). Again, this is consistent with previous studies (Picciano & Seaman, 2009).

School districts in this study were more likely to provide online courses themselves or contract with their own intermediate unit than results from previous studies reported (Picciano & Seaman, 2009). Additionally, although previous reports identify post-secondary institutions as

major providers, few districts in the current study contracted with them for online courses (Picciano & Seaman, 2009). Consistent with previous reports, however, independent vendors continue to provide online services for school districts.

Beginning to extend services beyond their fully online programs, cyber charter schools contract with local education agencies to provide online courses on a supplemental basis (Watson et al., 2010). Forty percent of the school districts represented in this study that offer blended courses contract with cyber charter schools as providers of blended, and 40 percent of districts represented in this study contract with cyber charter schools to offer online courses. Although referred to as *state virtual schools in your state* in previous studies (Picciano & Seaman, 2009), this study is consistent with the percentage of school districts contracting with cyber charter schools.

For online courses, rural school districts were more likely to contract with independent vendors, and less likely to contract with other local school districts, than UFLD school districts were.

5.4.1.5 Blended Learning Models

While blended learning models were originally classified by seven different model types (Horn & Staker, 2011; Tucker, 2012), more recent accounts clarify models and offer four broader classifications: rotation, flex, self-blend, and enriched-virtual (Kafer, 2013; Staker & Horn, 2012; Watson et al., 2012, 2013) or even only two classifications: flex and rotation (Bailey & Martin, 2013). The majority of participants in this study identified their blended learning model as a *flex blended learning model*, which relies heavily on online learning to individualize learning on a customized schedule among learning modalities with a teacher-of-record at a brick-and-mortar

site (Christensen, Horn, & Staker, 2013), or a *self-blend learning model*, in which students supplement traditional courses with online courses (Staker & Horn, 2012).

5.4.1.6 Future projections

Seventy-five percent of responding districts project that online course enrollments will grow within the next three years; this is slightly higher than previous reports (Picciano & Seaman, 2009). More districts (79.2 percent) project blended course enrollment increases. These forecasts support blended and online learning growth projections in the research literature (Bailey et al., 2013; Barbour, 2011; Christensen, Horn, & Johnson, 2008, 2011; Christensen, Horn, & Staker, 2013; Glick, 2009; Kafer, 2013; Kennedy & Soifer, 2013; Picciano & Seaman, 2009, 2007; Rice, 2006; Staker & Horn, 2012; Watson, 2005; Watson, Gemin, & Ryan, 2008; Watson et al., 2009; Watson et al., 2010; Watson, 2007; Watson, Winograd, & Kalmon, 2004; Watson et al., 2011, 2012, 2013).

5.4.2 Reasons for Implementing Blended and Online Learning

Consistent with reasons schools implement blended and online learning, superintendents reported providing credit recovery (Cavanaugh & Clark, 2007; Reid et al., 2009; Rice, 2006), meeting the needs of specific groups of students (Archambault & Crippen, 2009; Haglund, 2012; McFarlane, 2011), and providing access to courses otherwise unavailable as traditional courses (Berman & Tinker, 1997; Cavanaugh, Barbour, & Clark, 2009; Cavanaugh & Clark, 2007; Reid et al., 2009; Rice, 2006) as the most important reasons for offering online courses in their school districts. Although superintendents identified these three area as the most important reasons for offering blended and online learning, they attributed more importance to *accessing courses*

otherwise unavailable and *meeting the needs of specific groups of students* to online learning (as opposed to blended learning). Given the face-to-face interaction between teachers and students that blended learning includes, this somewhat contradicts other perceptions that blended learning serves as a greater benefit to some student populations (Berman & Sams, 2012; Palczewski, 2012; Tucker, 2012).

Although also listed as benefits to providing blended and online learning, superintendents attributed the least importance to blended and online learning providing increased access to highly qualified teachers. This contradicts a well-documented benefit of implementing online learning (Cavanaugh & Clark, 2007; Reid et al., 2009). Interestingly, superintendents viewed providing access to highly qualified teachers as a more important reason for offering blended courses than online courses, which is more consistent with previous research (Bailey et al., 2013; Kafer, 2013; Horn & Staker, 2011).

Although initial research touted the greatest benefits for rural school districts implementing online learning (Barbour & Ferdig, 2012; Moore et al., 2011; Picciano & Seaman, 2009; Rice, 2006; Watson et al., 2004; Watson, 2005; Watson et al., 2008), there was no statistical significance between rural and UFLD school district superintendents regarding the ranked reasons they provided for implementing online courses or blended courses. However, providing credit recovery options was significant when comparing school districts' MVAR and reasons for implementing blended courses, indicating that the higher a school district's MVAR, the greater the tendency for superintendents of those districts to indicate importance in providing credit recovery as a reason for implementing blended courses.

MVAR was related to offering online courses to meet the needs of specific groups of students and to provide credit recovery courses, as well. The greater a school district's MVAR,

the greater the tendency for superintendents of those districts to indicate importance in providing online courses to meet the needs of specific groups of students as well as to provide credit recovery courses. While the benefits of meeting specific groups of students' needs (Archambault & Crippen, 2009; Haglund, 2012; McFarlane, 2011) and providing credit recovery (Cavanaugh & Clark, 2007; Reid et al., 2009; Rice, 2006) are documented in previous studies, online learning's association with districts' MVARs is not. Additionally, there were no differences among the districts that offered online courses, neither blended nor online, and both blended and online regarding the reasons for offering blended or online learning.

In summary, the only factor that accounted for statistical significance among the various groups was districts' MVARs. Whether district were rural or UFLD and regardless of the programs they offer or do not offer, the reasons for implementing blended and online learning were comparable across districts.

5.4.3 Barriers to Implementing Blended and Online Learning

Comparable to previous studies, superintendents identified the greatest barriers to offering online courses as *concerns about course quality, online course development,* and *the need for professional development of existing staff members*.

While previous studies identify *limited technology infrastructure* as a barrier to offering online learning (Cavanaugh et al., 2009; Creighton, 2003; Oliver et al., 2010; Watson et al., 2008), it was among the least significant barriers identified in this study. Several studies identify the need for administrative support in order to implement online learning (Barbour & Ferdig, 2012; Cate & O'Hare, 2007; Creighton, 2003; Davis & Rose, 2007; Oliver et al., 2010; Schrum

et al., 2011). Superintendents of this study did not identify *limited technology skills of building administrators* as a significant barrier to implementing online learning.

Consistent with the barriers identified in the review of literature, superintendents identified that greatest barriers to offering blended courses as bl*ended course development* (Quilici, 2012), *concerns about course quality* (Bailey et al., 2013; Bernatek et al., 2012; Cavanaugh, 2009), and th*e need for professional development of existing staff* (Bernatek et al., 2012; Kim & Thompson, 2012; Pape, 2012, Quilici, 2012). The greater a districts' MVAR, the greater impact barriers that purchasing online content for online courses, purchasing content for blended courses, and providing professional development for existing staff members for blended learning had on school districts. Online course development (Quilici, 2012; Watson, 2005; Watson et al., 2004; Watson & Ryan, 2007) and purchasing online content (Cavanaugh, 2009; Kennedy & Soifer, 2013; Watson, 2005; Watson et al., 2004; Watson & Ryan, 2006; Watson et al., 2011) surfaced as more significant barriers to districts implementing both blended and online learning than to districts offering online courses only. These same barriers were more significant to districts offering neither blended nor online programs than they were to districts offering both.

Content development for blended courses surfaced as a challenge for districts offering both blended and online courses and online courses only. Although previous research does not disaggregate among districts that offer online, both blended and online, and neither blended nor online, development course content is documented as a barrier to implementing blended courses (Quilici, 2012; Watson, 2005; Watson et al., 2004; Watson & Ryan, 2007).

5.5 FINDINGS RELATED TO DISRUPTIVE INNOVATION

Identifying whether the implemented blended and online programs participating in this study appear to be more disruptive or sustaining innovations served as the theoretical framework for this study. As expected, evidence of both disruptive and sustaining innovations exists.

As previously described, disruptive innovations create new definitions of what constitutes good products and services through simpler, more convenient, cost-effective products or services that appeal to a new customer base (Christensen, Horn, & Johnson, 2011; Christensen, Horn, & Staker, 2013). Sustaining innovations, on the other hand, improve leading organizations by providing increasingly better products and services that are sold to companies' existing customers. By providing access to courses otherwise unavailable (Berman & Tinker, 1997; Cavanaugh, Barbour, & Clark, 2009; Cavanaugh and Clark, 2007; Reid et al., 2009; Rice, 2006) and expanding instruction beyond the traditional face-to-face environment (Barbour & Reeves, 2009; Oliver et al., 2009; Rice, 2006) for an increasingly larger student population (Cavanaugh et al., 2004; Watson, 2005; Watson, Gemin, & Ryan, 2008; Watson et al., 2009; Watson et al., 2010, 2011, 2012, 2013; Watson & Ryan, 2006, 2007; Watson, Winograd, & Kalmon, 2004) at a more cost-effective manner than traditional education currently provides (McFarlane, 2011; Reid et al., 2009; Tucker, 2012), online learning serves as an example of a disruptive innovation (Christensen, Horn, & Johnson, 2011; Christensen, Horn, & Staker, 2013).

Although initially sustaining in nature, certain models of blended learning are considered disruptive innovations: flex, a la carte, enriched-virtual and individual-rotation (Christensen, Horn & Staker, 2013). Because these models bear little resemblance to a traditional school system by ignoring seat-time for attendance to encourage students to determine the time, path, pace, and place that learning occurs, these blended learning models provide opportunities for

students otherwise unavailable as part of their traditional learning environments (Christensen, Horn, & Staker, 2013). These blended learning models are equally disruptive to the traditional school system.

With the majority of participating school districts having students enrolled in online courses, results from the current study provide evidence of online learning constituting a disruptive innovation, in particular for high school students. Additionally, superintendents reported course enrollments for a variety of courses, including required courses, elective courses, Keystone Exam-aligned courses, remedial courses, credit recovery courses, Advanced Placement courses, and additional courses providing college credit. This full menu of online provides access to courses and curriculum that may or may not have been previously available; therefore, online learning meets this threshold as a disruptive innovation.

While only a small number of districts reported blended learning implementation, the majority identified, in addition to other models more sustaining in nature, a flex blended learning model, which is one of the blended learning models identified as a disruptive innovation. Additionally, some described other disruptive blended learning models being implemented, including individual-rotation and enriched-virtual (Christensen, Horn, & Staker, 2013).

Participants were slightly more likely to agree that blended learning meets an important educational need for their students than they were to agree that online learning meets this same need. This could lean toward a preference for blended learning (sustaining) rather than online (disruptive) among participants, depending on the blended learning models that they prefer.

All districts in the study projected that blended course enrollments would at least stay the same, and almost 80 percent projected growth. Over 90 percent projected that online learning would at least stay the same, and three-fourths projected growth. For innovations to be

disruptive, it must gain momentum to project the eventual replacement of the established system (Christensen, Horn, & Staker, 2013).

Participants recognize online learning as meeting an important educational need for their districts' students. Superintendents reported providing credit recovery, meeting the needs of specific groups of students, and providing access to courses otherwise unavailable as traditional courses as the most important reasons for implementing blended and online learning. These reasons were consistent between blended and online; leaving the researcher unable to determine whether programs appear to be more disruptive or sustaining.

Consistent with cost-effective measures associated with online learning, participants indicated slightly higher agreement with online learning being financially beneficial to school districts (when compared to blended learning). With the market value aid ratio being the only factor that accounted for statistical significance among the various groups with regard to reasons districts implement blended and online learning and barriers to implementation that include course development and professional development of existing staff, ensuring that this disruptive innovation provides a cost-effective alternative becomes increasingly important to school districts struggling to meet lean budget demands.

5.6 LIMITATIONS AND DELIMITATIONS OF THE STUDY

The current study provided significant implications regarding the nature of blended and online learning, the reasons traditional school districts implement blended and online learning, and the benefits and barriers that school districts face when implementing these programs. However, there are limitations and delimitations that future researchers should consider.

Communicating a clear definition of blended versus online learning becomes a challenge. Researchers continue to document inconsistently defined and applied terminology as a limitation of research in this emerging field (Moore et al., 2011; Oblinger & Oblinger, 2005; Staker & Horn, 2012; Watson et al., 2013). Although the current study provided the definition on the survey instrument, definitions of blended and online learning continue to develop, and participants applying their own definitions of blended and online learning could significantly impact the results.

The challenge of defining blended learning, in particular, is the classification of schools, programs, and classrooms that incorporate digital resources, but do not meet all components of the blended learning definition (Watson et al., 2013). An attempt to facilitate this classification, researchers describe specific blended learning models: flex, self-blend, enriched-virtual, and rotation (Kafer, 2013; Staker & Horn, 2012). However, while some divide these models among seven different models (Horn & Staker, 2012; Tucker, 2012), some simply identify blended learning models between two: rotation and flex (Bailey & Martin, 2013). Most continue to reference four models of blended learning (Staker & Horn, 2012; Watson et al., 2012, 2013). This study included only one question attempting to identify the blended learning models being implemented. Future research would benefit from direct observation of programs, on-site interviews to ensure that models are clearly being applied as participants classify them, and perhaps a different sampling to include instructors and students of blended and online courses in order to gain an accurate account of the programs being implemented (iNACOL, 2013).

The results of this study are limited to the self-reported perceptions communicated from district superintendents regarding blended and online programs in their traditional school districts (Mertens, 2005).

Another research design limitation is that by completing a series of nonparametric tests, controlling for Type 1 errors was not done; therefore, false positive statistically significant findings could result. Future research should control for Type 1 errors.

This study was delimited to superintendents of traditional school districts in three rural counties. This delimitation was purposeful for three reasons: to secure a district-wide perspective, to acquire an initial account of the blended and online programs implemented in traditional school districts, and to ensure that rural school districts were included. Because superintendents provide a district-wide perspective, as opposed to a building-level, classroom-level, or learner-level viewpoints, superintendents were sought as the optimal participant. To secure more clarity about specific programs, however, other participants may be desired.

Additionally, this study was delimited to traditional school districts. While data limitations continue to plague all areas of online learning, single-district programs represent the least tracked and least understood facet of the online learning spectrum (Watson et al, 2009; Watson et al., 2010, 2011, 2012, 2013).

Because little research has been done in the field as a whole regarding school-age populations, and supplemental programs continue to elude the research base (Farley & Lare, 2012; Watson et al., 2008; Watson et al., 2012), this study attempted to capture an initial glimpse of how traditional school districts are implementing blended and online programs. Future research may include case studies of different programs.

Additionally, because students in rural school districts were among the initial populations positioned to gain the most from blended and online programs, a purposeful sample that included rural school districts aimed to compare rural school district programs with other districts' programs.

Finally, although through a power analysis, the participation threshold for power analysis was met, the normality test was not. Therefore, future studies should expand the sample size to include more districts before generalizing the results of similar studies to other populations.

5.7 IMPLICATIONS FOR SCHOOL SUPERINTENDENTS

In Pennsylvania, as in other states, per pupil allocations travel with public school students (Watson et al., 2013), so when children leave traditional school districts to attend cyber charter schools, districts lose revenue. Traditional school districts may be lured to a blended or online learning initiative by the potential of maintaining their geographic student populations; however, these initiatives come with a price tag.

Regardless of whether district leaders consider implementing blended or online learning programs, this study found that the greater a district's poverty, as measured by their market value aid ratios (MVAR), the greater the barriers of *purchasing online content* and p*roviding professional development for existing staff* posed. These areas, however, do not comprise the only fiscal considerations that districts face.

In addition to costs associated with online content and professional development, at least three additional areas associated with funding must be considered: infrastructure to secure Internet connectivity, technology devices for students unable to provide their own, and the investment in personnel. Infrastructure considerations from broadband access, wired and wireless networking, power supply, and classroom configurations may total significant budgetary line items (Bailey et al., 2013). While districts may leverage existing devices to initiate blended and online learning programs, maintaining and expanding these opportunities requires effective

planning (Bailey et al., 2013; Edwards, 2013). By expanding the learning environment to at least a partial online medium, instructional hours extend beyond what most teachers' collective bargaining agreements define. In addition to the instructional staffing, instructional technology support may be required to support district-provided blended and online learning initiatives (Bailey et al., 2013; Edwards, 2013).

While these costs can be measured by dollars and cents, researchers have yet to determine whether the financial investments in blended and online learning yield increased student achievement. Until states and districts collect consistent data across programs and models of implementation to provide a transparent account of blended, online, and face-to-face learning, determining what works best for learning outcomes will continue to evade the research base, and most importantly, fail to impact the educational provisions that positively impact student learning.

5.8 FUTURE RESEARCH

Until states invest in systems that collect blended and online learning data on all participants to provide transparent accountability, limited outcomes and conclusions will continue to populate this young research field (Watson et al., 2011). Policy development that accommodates such transparency would facilitate future research able to determine under what conditions and for which specific groups of students blended and online instruction works best. Additionally, transparent data access would ensure not only more accurate blended and online learning enrollment and growth projections, but it would also ensure that students have equal access, regardless of zip code, to the benefits that blended and online learning may provide.

Few studies address access to online courses with regard to family income or students' specific needs (Watson et al., 2004). The results of the current study indicate that the higher a school district's market value aid ratio (MVAR), the greater the following three barriers are to school districts implementing blended and online programs: purchasing online content for online courses, purchasing online content for blended courses, and the need for professional development of existing staff. School district's MVAR also indicated that the higher the MVAR, the more important the reason for offering blended courses to provide credit recovery options, and the more important the reasons for offering online courses to meet the needs of specific groups of students as well as provide credit recovery options. Although some literature indicates that blended and online learning offer quality education at a discounted cost (Horn & Staker, 2011; Kafer, 2013; McFarlane, 2011; Reid et al., 2009; Tucker, 2012), this claim may not be accurate. Future studies regarding MVAR and provisions for blended and online learning may shed some light on this claim, and determine whether the findings from the current study yield statistical significance with a larger sample size.

Participants were slightly more likely to agree that blended courses fill important educational needs in their districts than online courses; however, this comparison is based on a small sample size. Future research should further consider this area to determine whether there is a preference for blended programs over online programs and whether the blended learning models are more sustaining or disruptive in nature.

Appendix A

COMPARISONS BETWEEN THE PICCIANO & SEAMAN (2009) SURVEY INSTRUMENT AND THE MODIFIED SURVEY INSTRUMENT

Original Survey Question

Did students in your district take any **fully online or blended/hybrid courses** between July 1, 2007 and June 30, 2008?

	At least one student took this type of course	No students; but the district plans to offer them within three years	No students; no district plans to offer them within three years
Fully online courses A course where most or all of the content is delivered online, typically has no face-to-face meetings	□	□	□
Blended/hybrid courses A course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, sometimes uses online discussions, and typically has few face-to-face meetings	□	□	□

<table>
<tr><td>Revised Survey Question</td><td>
1. Did students enrolled in your school district register for any blended and/or online courses between July 1, 2012, and June 30, 2013?
<table>
<tr><th></th><th>At least one student took this type of course offered by a teacher in our school district.</th><th>At least one student took this type of course from a provider outside of our school district (i.e., intermediate unit consortium, post-secondary institution, another school district, vendor)</th><th>No students took this type of course, but the district plans to offer online courses within the next three years.</th><th>No students took this type of course, and the district does not plan to offer online courses within the next three years.</th></tr>
<tr><td>A. Blended Course: A structured course combining online learning and traditional, face-to-face learning with some student control over time, place, path, and/or pace.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>B. Online Course: A structured, teacher-led course delivered over the Internet where teachers and learners are separated by location and time.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td></tr>
</table>
</td></tr>
<tr><td>Rationale</td><td>

Provided specificity regarding students enrolled in school district, rather than general to possibly include children who reside in participants' school districts but are enrolled in cyber charter schools, nonpublic schools, or other educational providers.
Because the current school year will not end until June 30, 2014 and to ensure that data collection includes a full school calendar year, data collection will focus on the 2012-2013 school year.

</td></tr>
<tr><td>Research Question # One</td><td>1. What is the nature of blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?</td></tr>
<tr><td>Literature</td><td>Cavanaugh, Barbour, Clark, 2009; NCES, 2011; Pape & Wicks, 2009; Picciano & Seaman, 2007, 2009; Project Tomorrow, 2009; SREB, 2012; Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013</td></tr>
<tr><td>Original Survey Question</td><td>
How important do you believe the following reasons are for a school district to offer online or blended learning courses?
<table>
<tr><th></th><th colspan="2">Not at all Important</th><th colspan="3">Neutral</th><th colspan="2">Very Important</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Online and blended offerings are pedagogically more beneficial.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Addressing growing populations and limited space.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Online and blended offerings are financially beneficial.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Students prefer online course activities.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Certified teachers are not available for face-to-face instruction.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Offering courses not otherwise available at the school.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Offering Advanced Placement or college-level courses.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Meeting the needs of specific groups of students.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Reducing scheduling conflicts for students.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Permitting students who failed a course to take it again.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
</table>

Revised Survey Question	

2. How important do you believe the following reasons are for a school district to offer ***online courses***?

	Very Unimportant	Somewhat Unimportant	Somewhat Important	Very Important
A. Online courses are pedagogically more beneficial than traditional, face-to-face courses.	○	○	○	○
B. Online courses are pedagogically more beneficial than blended courses.	○	○	○	○
C. Providing online courses helps to address increasing student enrollment populations.	○	○	○	○
D. Offering online courses is financially beneficial to school districts.	○	○	○	○
E. Students prefer online course activities over traditional, face-to-face courses.	○	○	○	○
F. Students prefer online course activities over blended courses.	○	○	○	○
G. Online courses help to meet a shortage of highly qualified teachers.	○	○	○	○
H. Online courses provide students with access to courses that are otherwise unavailable as traditional, face-to-face courses.	○	○	○	○
I. Online courses offer Advanced Placement or college-level courses that are not otherwise available as traditional, face-to-face courses.	○	○	○	○
J. Providing online courses reduces scheduling conflicts for students.	○	○	○	○
K. Online courses meet the needs of specific groups of students.	○	○	○	○
L. Online courses provide options for students who failed particular courses an opportunity to retake the course and recover credit.	○	○	○	○

<table>
<tr><td></td><td>
3. How important do you believe the following reasons are for a school district to offer blended courses?
<table>
<tr><th></th><th>Very Unimportant</th><th>Somewhat Unimportant</th><th>Somewhat Important</th><th>Very Important</th></tr>
<tr><td>A. Blended courses are pedagogically more beneficial than traditional, face-to-face courses.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>B. Blended courses are pedagogically more beneficial than online courses.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>C. Providing blended courses helps to address increasing student enrollment populations and limited building space.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>D. Offering blended courses is financially beneficial to school districts.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>E. Blended courses increase students' access to highly qualified teachers.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>F. Blended courses provide students with access to courses that are otherwise unavailable as traditional, face-to-face courses.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>G. Blended courses provide students with access to Advanced Placement and college-level courses that are not otherwise available.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>H. Blended courses meet the needs of specific groups of students.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>I. Blended courses reduce scheduling conflicts for students and school districts.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>J. Blended courses provide options for students who failed courses to retake the course and recover credit.</td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Rationale</td><td>

Statements were divided to assess the differences between blended and online programs.
Statements were revised to clarify comparisons among blended, online, and traditional courses.

</td></tr>
<tr><td>Research Question # Two</td><td>Why do district superintendents offer blended or online programs in traditional school districts of three counties in southwestern Pennsylvania?</td></tr>
<tr><td>Literature</td><td>Barbour & Ferdig, 2012; Christensen, Horn, & Johnson, 2011; SREB, 2011; Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013</td></tr>
<tr><td>Original Survey Question</td><td>
How much of a barrier are the following areas to your district in offering fully online or blended/hybrid learning courses?
<table>
<tr><th></th><th colspan="2">Not at all Important</th><th colspan="2">Neutral</th><th colspan="2">Very Important</th></tr>
<tr><td>Course development and/or purchasing costs.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Limited technological infrastructure to support distance education.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
</table>

	Concerns about course quality.								
	Restrictive federal, state, or local laws or policies.								
	The need for teacher training.								
	Concerns about achieving funding based on student attendance for online and/or blended/hybrid education courses.								

Revised Survey Question

4. How much of a barrier or challenge are the following areas to your district offering ***online courses***?

	Significant Challenge	Challenge	Minor Challenge	Not a Challenge
A. Online course development	○	○	○	○
B. Purchasing online course content	○	○	○	○
C. Limited technological infrastructure to support online education	○	○	○	○
D. Concerns about online course quality	○	○	○	○
E. Restrictive federal, state, and local laws or policies	○	○	○	○
F. Limited technology skills of teachers	○	○	○	○
G. Limited technology skills of building administrators	○	○	○	○
H. The need for professional development of existing staff members	○	○	○	○

5. How much of a barrier or challenge are the following areas to your district offering ***blended courses***?

	Significant Challenge/Barrier	Challenge/Barrier	Minor Challenge/Barrier	Not a Challenge/Barrier
A. Blended course development	○	○	○	○
B. Purchasing online content for a blended course	○	○	○	○
C. Limited technological infrastructure to support blended learning courses	○	○	○	○
D. Concerns about blended course quality	○	○	○	○
E. Restrictive federal, state, and local laws and policies	○	○	○	○
F. Limited technology skills of teachers	○	○	○	○
G. Limited technology leadership skills of administrators	○	○	○	○
H. The need for professional development	○	○	○	○

Rationale	• The questions were separated between blended and online courses to identify if a difference between the two exists. • The scale was modified from a seven-item scale to a four-item scale to reduce ambiguity among descriptors and to force a direction regarding responses.
Research Question #Three	According to district superintendents, what are the primary barriers to implementing blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?
Literature	Archambault & Crippen, 2009; Bailey et al., 2013; Barbour & Ferdig, 2012; Barbour & Reeves, 2009; Bergmann & Sams, 2012; Berman & Tinker, 1997; Cavanaugh et al., 2009; Cavanaugh, Barbour, & Clark, 2009; Cavanaugh & Clark, 2007; Haglund, 2012; Hawkins & MacMillan, 1993; Herring, 2004; Kim & Thompson, 2012; Larson & Murray, 2008; McFarlane, 2011; Niemiec & Otte, 2010; Oliver et al., 2009; Reid et al., 2009; Rice, 2006; Richardson & Swan, 2012; SREB, 2011; Staker & Horn, 2012; Tubbs et al., 2012; Watson et al., 2008
Original Survey Question	We are interested in your opinions. Please let us know your thoughts (positive or negative) on an aspect on online and blended/hybrid courses and their potential for your district. (Use additional sheets if needed.) Email address if you would like a free download of the final survey report: [_____] ***Survey continues on other side***. ***The following questions are for districts that offer online or blended/hybrid courses.*** In what year did any student in your district ***first*** take a fully online or blended/hybrid course? Year for first fully online course: [____] Year for first blended/hybrid course: [____]

<table>
<tr><td>Revised Survey Question</td><td>
6. In what year did any students in your district first take a blended or online course?
<table>
<tr><th></th><th>Blended Course</th><th>Online Course</th></tr>
<tr><td>2012-2013</td><td>☐</td><td>☐</td></tr>
<tr><td>2011-2012</td><td>☐</td><td>☐</td></tr>
<tr><td>2010-2011</td><td>☐</td><td>☐</td></tr>
<tr><td>2009-2010</td><td>☐</td><td>☐</td></tr>
<tr><td>2008-2009</td><td>☐</td><td>☐</td></tr>
<tr><td>2007-2008</td><td>☐</td><td>☐</td></tr>
<tr><td>2006-2007</td><td>☐</td><td>☐</td></tr>
<tr><td>2005-2006</td><td>☐</td><td>☐</td></tr>
<tr><td>2004-2005</td><td>☐</td><td>☐</td></tr>
<tr><td>2003-2004</td><td>☐</td><td>☐</td></tr>
<tr><td>2002-2003</td><td>☐</td><td>☐</td></tr>
<tr><td>2001-2002</td><td>☐</td><td>☐</td></tr>
<tr><td>2000-2001</td><td>☐</td><td>☐</td></tr>
<tr><td>Before 2000</td><td>☐</td><td>☐</td></tr>
</table>
</td></tr>
<tr><td>Rationale</td><td>

This question displaying for respondents is dependent about responses to Question One. All respondents that indicate blended and/or online courses were taken by students enrolled in their district will see this question.
Provided options, to maintain a closed-response survey.

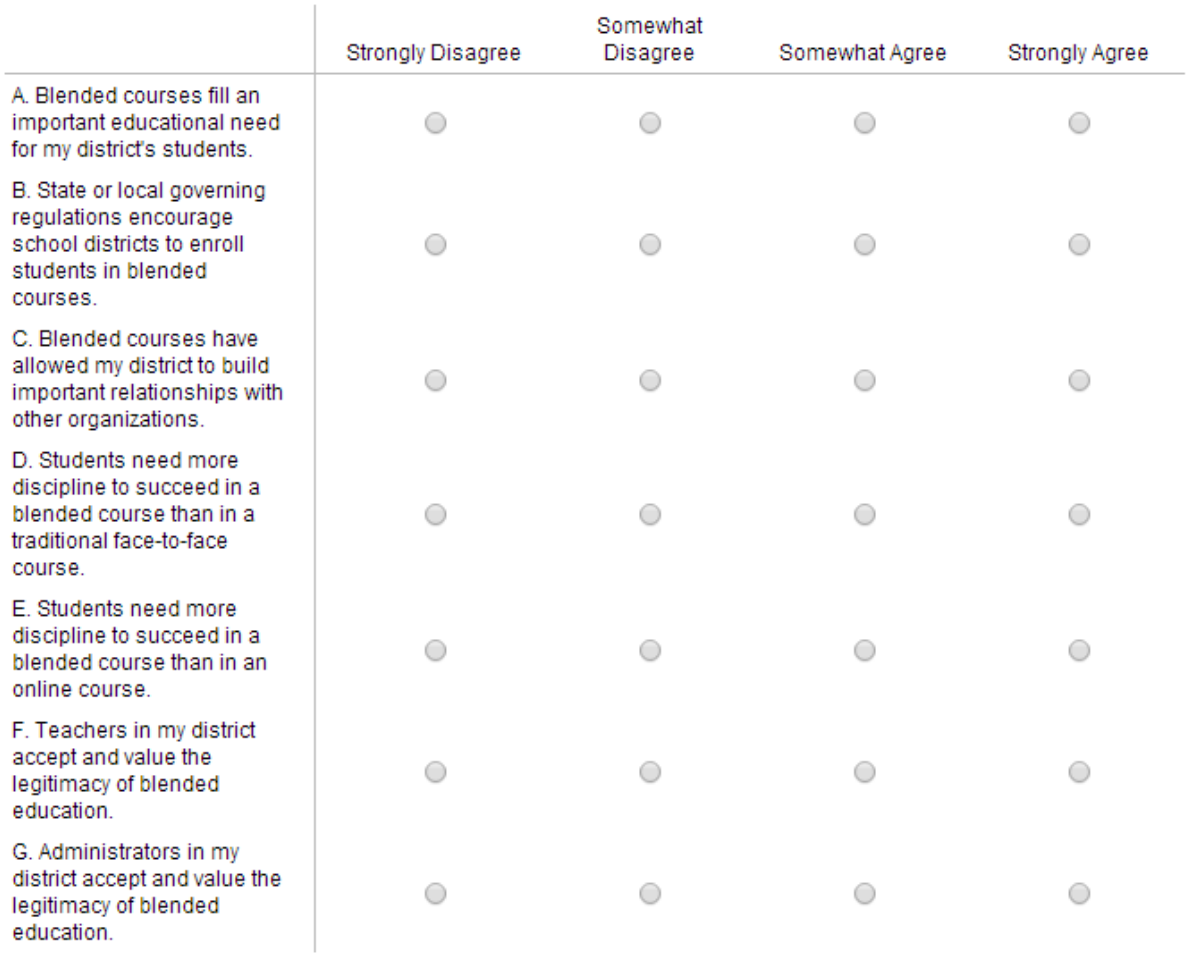
</td></tr>
<tr><td>Research Question #One</td><td>What is the nature of blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?</td></tr>
<tr><td>Literature</td><td>Cavanaugh, Barbour, Clark, 2009; NCES, 2011; Pape & Wicks, 2009; Picciano & Seaman, 2007, 2009; Project Tomorrow, 2009; SREB, 2012; Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013</td></tr>
<tr><td>Original Survey Question</td><td>
Select the level (1-7) at which you disagree/agree with the following statements with regard to students in your district.
<table>
<tr><th></th><th>Strongly Disagree</th><th></th><th>Neutral</th><th></th><th></th><th>Strongly Agree</th></tr>
<tr><td>Fully online and blended/hybrid courses fulfill an important educational need for my students.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Fully online and blended/hybrid course experiences are comparable</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
</table>

	in educational value to traditional face-to-face instruction.							
	State or local governing bodies or regulations are encouraging school districts to enroll students in online and blended courses.							
	Fully online courses and blended/hybrid courses have allowed my district to build important relationships with other organizations.							
	Students need more discipline to succeed in an online course than in a face-to-face course.							
	Faculty in my district accept the value and legitimacy of online education.							

Revised Survey Question

7. Select the level at which you disagree/agree with the following statements with regard to students in your district.

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
A. Online courses fill an important educational need for my district's students.	○	○	○	○
B. State or local governing regulations encourage school districts to enroll students in online courses.	○	○	○	○
C. Online courses have allowed my district to build important relationships with other organizations.	○	○	○	○
D. Students need more discipline to succeed in an online course that in a face-to-face course.	○	○	○	○
E. Students need more discipline to succeed in an online course than in a blended course.	○	○	○	○
F. Teachers in my district accept and value the legitimacy of online education.	○	○	○	○
G. Administrators in my district accept and value the legitimacy of online education.	○	○	○	○

	8. Select the level at which you disagree/agree with the following statements with regard to students in your district. 
Rationale	• The questions were separated between blended and online courses to identify if a difference between the two exists. • The scale was modified from a seven-item scale to a four-item scale to reduce ambiguity among descriptors and to force a direction regarding responses.
Research Questions One, Two, and Four	1. What is the nature of blended and online programs in traditional school districts of three counties in southwestern Pennsylvania? 2. Why do district superintendents implement blended or online programs in traditional school districts of three counties in southwestern Pennsylvania? 4. According to district superintendents, what are the primary benefits of implementing blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?
Literature	**Both Blended and Online:** Cavanaugh, Barbour, Clark, 2009; NCES, 2011; Pape & Wicks, 2009; Project Tomorrow, 2009; SREB, 2012; Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013 **Blended:** Bailey & Martin, 2013; Barbour & Ferdig, 2012; Bergmann & Sams; Horn & Staker, 2012; Kafer, 2013; Matheos, Daniel, & McCalla, 2005; Niemiec & Otte, 2010; Rudi, 2012; Staker, n.d.; Staker & Horn, 2012; Tucker, 2012 **Online:** Archambault & Crippen, 2009; Barbour & Ferdig, 2012; Cavanaugh et al., 2004; Cavanaugh, Barbour, & Clark, 2009; Farley & Lare, 2012; Haglund, 2012; Horn & Staker, 2011; Marsh, Carr-Chellman, & Sockman, 2009; Moore, Dickson-Deane & Galyen, 2011; Palloff & Pratt, 2011; Pape et al.,

<table>
<tr><td></td><td>2012; Reid et al., 2009; Rice, 2006; Roblyer & McKenzie, 2000; Vornberg & Maris, 2003; Wicks, 2010</td></tr>
<tr><td>New Question</td><td>
9. Select the statement(s) that describe the blended courses implemented in your district . (Check all that apply)

☐ Students in blended courses rotate among modules within a particular classroom and complete modules that include online learning, tutoring, small-group instruction, large-group instruction, and/or paper and pencil assignments.
☐ Students in blended learning courses engage primarily in online learning content at a self-paced progression, and a teacher-of-record provides assistance, as needed by the individual learner.
☐ Students in blended learning courses rotate between a classroom and an online learning computer lab to complete modules of online learning, tutoring, small-group instruction, large-group instruction, and/or paper and pencil assignments.
☐ Students in our district take one or more fully online courses in conjunction with a traditional, face-to-face course schedule.
☐ Students in blended learning courses participate in a flipped classroom model where a period of class time is allotted for project completion, teacher-guided support and practice, and students complete online content and view direct instruction (typically via video) at home.
☐ Students in our district divide their schedules between a full menu of courses that blend online and face-to-face courses.
☐ Students in blended learning courses have individualized instruction plans that map their progression through online and face-to-face instruction and learning modules.
</td></tr>
<tr><td>Rationale</td><td>

This question was added to determine the model of blended learning being implemented.
This question will display only for those who indicated that blended courses were available in their district.
The descriptor statements are based on The Christensen Institute of Disruptive Innovation’s definitions of blended learning models.
This question is asked in an effort to gauge whether districts are implementing blended learning as a model associated with disruptive innovation or a model associated with a sustaining hybrid innovation.

</td></tr>
<tr><td>Research Question One</td><td>What is the nature of blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?</td></tr>
<tr><td>Literature</td><td>Bailey & Martin, 2013; Barbour & Ferdig, 2012; Bergmann & Sams, 2012; Christensen, Horn, & Johnson, 2008, 2011; Christensen, Horn, & Staker, 2013; Horn & Staker, 2012; Kafer, 2013; Matheos, Daniel, & McCalla, 2005; Niemiec & Otte, 2010; Rudi, 2012; Staker, n.d.; Staker & Horn, 2012; Tucker, 2012</td></tr>
<tr><td>Original Survey Question</td><td>
The nature of online or blended/hybrid courses taken by students in my district (check all that apply):
<table>
<tr><th></th><th>Required courses</th><th>Elective courses</th><th>Remedial courses</th><th>Advanced Placement (AP) courses</th><th>Courses for College Credit other than AP</th><th>Other</th></tr>
<tr><td>Fully online</td><td>o</td><td>o</td><td>o</td><td>o</td><td>o</td><td>o</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td>
<table>
<tr><td>courses</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Blended/ hybrid courses</td><td>o</td><td>o</td><td>o</td><td>o</td><td>o</td><td>o</td></tr>
</table>
</td></tr>
<tr><td>Revised Survey Question</td><td>
10. The nature of blended or online courses taken by students in my district (check all that apply):
<table>
<tr><th></th><th>Required Courses</th><th>Elective Courses</th><th>Courses Aligned to Keystone Exams</th><th>Remedial Courses</th><th>Credit Recovery Courses</th><th>Advanced Placement Courses</th><th>Courses for College Credit (Other than AP)</th><th>Other</th></tr>
<tr><td>A. Blended Courses</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>B. Online Courses</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td></tr>
</table>
</td></tr>
<tr><td>Rationale</td><td>This question was revised to include a “courses aligned to Keystone Exams” and credit recovery responses. Both of these provisions are relevant to school districts in southwestern Pennsylvania and could not have been assessed at the time that the original survey was administered, nor would the provisions be pertinent to a national sampling.</td></tr>
<tr><td>Research Question One</td><td>What is the nature of blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?</td></tr>
<tr><td>Literature</td><td>Barbour & Ferdig, 2012; Christensen, Horn, & Johnson, 2011; SREB, 2011; Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013</td></tr>
<tr><td>Original Research Question</td><td>
The provider(s) for fully online and blended courses for my district are (check all that apply):
<table>
<tr><th>Provider</th><th>Online Courses</th><th>Blended/ Hybrid Courses</th></tr>
<tr><td>Your district (i.e., delivered centrally from the district)</td><td></td><td></td></tr>
<tr><td>Cyber (online) charter school in your district</td><td></td><td></td></tr>
<tr><td>Other schools in your district</td><td></td><td></td></tr>
<tr><td>Another local school district, or schools in another district, in your state</td><td></td><td></td></tr>
<tr><td>Education service agencies within your state (e.g., BOCES, COE, IU), not including the state education agency or local school districts</td><td></td><td></td></tr>
<tr><td>State virtual schools in your state</td><td></td><td></td></tr>
<tr><td>State virtual schools in another state</td><td></td><td></td></tr>
<tr><td>Districts or schools in other states (other than state virtual schools)</td><td></td><td></td></tr>
<tr><td>Postsecondary institution</td><td></td><td></td></tr>
<tr><td>Independent vendor</td><td></td><td></td></tr>
<tr><td>Other</td><td></td><td></td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td>Revised Survey Question</td><td>
11. The provider(s) for blended and online courses for my district are: (Check all that apply for both blended and/or online)
<table>
<tr><th></th><th>Blended Courses</th><th>Online Courses</th></tr>
<tr><td>My school district</td><td>☐</td><td>☐</td></tr>
<tr><td>My intermediate unit's consortium</td><td>☐</td><td>☐</td></tr>
<tr><td>Another intermediate unit</td><td>☐</td><td>☐</td></tr>
<tr><td>A local school district (other than my own)</td><td>☐</td><td>☐</td></tr>
<tr><td>Cyber charter schools</td><td>☐</td><td>☐</td></tr>
<tr><td>Post-secondary institution</td><td>☐</td><td>☐</td></tr>
<tr><td>Independent vendors</td><td>☐</td><td>☐</td></tr>
<tr><td>Other</td><td>☐</td><td>☐</td></tr>
</table>
</td></tr>
<tr><td>Rationale</td><td>Revised options to reflect current blended and online options for Pennsylvania schools.</td></tr>
<tr><td>Research Question One</td><td>What is the nature of blended and online instruction in traditional school districts of three counties in southwestern Pennsylvania?</td></tr>
<tr><td>Literature</td><td>Cavanaugh, Barbour, Clark, 2009; NCES, 2011; Pape & Wicks, 2009; Picciano & Seaman, 2007, 2009; Project Tomorrow, 2009; SREB, 2012; Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013</td></tr>
<tr><td>Original Research Question</td><td>
What is your best estimate of the number of student enrollments (a student enrolled in more than one course should be counted only once) between July 1, 2007 and June 30, 2008?
<table>
<tr><th></th><th>Number of students taking at least one fully online course</th><th>Number of students taking at least one blended/hybrid course</th></tr>
<tr><td>Grades K-5</td><td></td><td></td></tr>
<tr><td>Grade 6-8</td><td></td><td></td></tr>
<tr><td>Grades 9-12</td><td></td><td></td></tr>
<tr><td>Other</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Revised Survey Question</td><td>
12. At which levels do you have students who enrolled in at least one blended and/or online course between July 1, 2012, and June 30, 2013? (Check all that apply.)
<table>
<tr><th></th><th>At least one student took a blended course</th><th>At least one student took an online course</th></tr>
<tr><td>Grades K-5</td><td>☐</td><td>☐</td></tr>
<tr><td>Grades 6-8</td><td>☐</td><td>☐</td></tr>
<tr><td>Grades 9-12</td><td>☐</td><td>☐</td></tr>
<tr><td>Other</td><td>☐</td><td>☐</td></tr>
</table>
</td></tr>
<tr><td>Rationale</td><td>

The terminology of blended course and online course were revised for consistency with terminology used in this modified survey instrument.
The year was revised to reflect the data for this survey instrument.

</td></tr>
<tr><td>Research</td><td>What is the nature of blended and online programs in traditional school districts of three counties</td></tr>
</table>

Question One	in southwestern Pennsylvania?
Literature	Cavanaugh, Barbour, Clark, 2009; NCES, 2011; Pape & Wicks, 2009; Picciano & Seaman, 2007, 2009; Project Tomorrow, 2009; SREB, 2012; Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013
Original Survey Question	Over the next two years, my district expects **fully online course enrollments** to: o Grow by about [____] percent. o Stay about the same. o Decrease.
Revised Survey Question	13. Over the next three years, my district expects ***online course enrollments*** to: Grow between 75 - 100% Grow between 50 - 74% Grow between 25-49% Grow between 0 -24% Stay the same Decrease by 0-24% Decrease by 25-49% Decrease by 50 - 74% Decrease by 75 - 100%
Rationale	• The question was changed from two to three years to align with a three-year mid-point review/comprehensive planning process that Pennsylvania schools implement. • Provided options to maintain a closed-response item.
Research Question One	What is the nature of blended and online programs in traditional school districts of three counties in southwestern Pennsylvania?
Literature	Cavanaugh, Barbour, Clark, 2009; NCES, 2011; Pape & Wicks, 2009; Picciano & Seaman, 2007, 2009; Project Tomorrow, 2009; SREB, 2012; Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013
Original Survey Question	Over the next two years, my district expects **blended/hybrid course enrollments** to: o Grow by about [____] percent. o Stay about the same. o Decrease.

Revised Survey Question	14. Over the next three years, my district expects ***blended course enrollments*** to: ○ Grow between 75 - 100% ○ Grow between 50 - 74% ○ Grow between 25-49% ○ Grow between 0 -24% ○ Stay the same ○ Decrease by 0-24% ○ Decrease by 25-49% ○ Decrease by 50 - 74% ○ Decrease by 75 - 100%
Rationale	• Changed from two to three years to align with a three-year mid-point review/comprehensive planning process that Pennsylvania schools implement. • Provided options to maintain a closed response item
Research Question One	What is the nature of blended and online programs in traditional school districts of three counties on southwestern Pennsylvania?
Literature	Cavanaugh, Barbour, Clark, 2009; NCES, 2011; Pape & Wicks, 2009; Picciano & Seaman, 2007, 2009; Project Tomorrow, 2009; SREB, 2012; Watson et al., 2004; Watson, 2005; Watson & Ryan, 2006, 2007; Watson et al., 2008, 2009, 2010, 2011, 2012, 2013

Appendix B

INVITATION TO PARTICIPATE

March 24, 2014

Dear Superintendent:

With the support of my committee, Drs. Trovato, Kerr, Kirk, and Bickel, I am conducting a survey of local superintendents to determine the types of blended and online programs, if any, being implemented in traditional school districts, located in Fayette, Greene, and Washington Counties. I would like to invite you to participate in a confidential, web-based survey, which will take approximately 10 minutes of your time to complete. This research study is being performed as partial fulfillment of my doctoral degree in administrative and policy studies at the University of Pittsburgh.

This survey requests district information for the 2012-2013 school year. Any identifying information will be kept confidential. No one other than the researcher will know how you responded to the survey questions. The reported results will not identify you or your school district. Data from this survey will be downloaded to a USB file storage and stored in a locked box for five years in the researcher's home.

You are under no obligation to participate in this research study, and your professional standing will not be affected whether you do or do not choose to participate. Your participation is voluntary, and you are free to withdraw at any time. If you wish to withdraw your participation at any time, the survey responses will not be used for the research study.

There are no foreseeable risks greater than those encountered in everyday life. Your participation may contribute to the knowledge of blended and online learning programs implemented in traditional school districts.

There will be no compensation for participation in this study, nor will you incur any monetary expense by participating in this research study.

Within the next few days, you will receive an email from me that includes an individual link to the survey. Your completion of the survey serves as your consent to participate in the research study; however, you reserve the right to withdraw consent at any time, for any reason.

If you have any questions about your participation in this survey, please contact Ms. Erica Kolat, Doctoral Candidate, University of Pittsburgh, (724) 986-8974, or elk49@pitt.edu. I will share the results of this study at a future Superintendents Advisory Council meeting.

Sincerely,
Erica L. Kolat
elk49@pitt.edu

Appendix C

E-MAIL INVITATION TO PARTICIPATE

March 24, 2014

Dear Superintendent:

With the support of my committee, Drs. Trovato, Kerr, Kirk, and Bickel, I am conducting a survey of local superintendents to determine the types of blended and online programs, if any, being implemented in traditional school districts, located in Fayette, Greene, and Washington Counties. I would like to invite you to participate in a confidential, web-based survey, which will take approximately 10 minutes of your time to complete. This research study is being performed as partial fulfillment of my doctoral degree in administrative and policy studies at the University of Pittsburgh.

This survey requests district information for the 2012-2013 school year. Any identifying information will be kept confidential. No one other than the researcher will know how you responded to the survey questions. The reported results will not identify you or your school district. Data from this survey will be downloaded to a USB file storage and stored in a locked box for five years in the researcher's home.

You are under no obligation to participate in this research study, and your professional standing will not be affected whether you do or do not choose to participate. Your participation is voluntary, and you are free to withdraw at any time. If you wish to withdraw your participation at any time, the survey responses will not be used for the research study.

There are no foreseeable risks greater than those encountered in everyday life. Your participation may contribute to the knowledge of blended and online learning programs implemented in traditional school districts.

There will be no compensation for participation in this study, nor will you incur any monetary expense by participating in this research study.

Below please find your individualized link to the survey instrument.

[Qualtrics Survey Link will be here.]

Your completion of the survey serves as your consent to participate in the research study; however, you reserve the right to withdraw consent at any time, for any reason.

If you have any questions about your participation in this survey, please contact Ms. Erica Kolat, Doctoral Candidate, University of Pittsburgh, (724) 986-8974, or elk49@pitt.edu. I will share the results of this study at a future Superintendents Advisory Council meeting.

Sincerely,

Erica L. Kolat
(724) 986-8974
elk49@pitt.edu

Appendix D

WEEK ONE FOLLOW-UP EMAIL

March 31, 2014 (Week One Follow-Up Email)

Dear Superintendent:

Last week you received an email regarding a request to participate in a survey of local superintendents to determine the types of blended and online programs, if any, being implemented in traditional school districts. As of today, I have not received your response. For your reference, the invitation to participate in the survey is provided below, which includes your individual link to the survey instrument. Because the survey will close in one week, I wanted to ensure that you had an opportunity to participate in the study. If you have any questions, please contact me at (724) 986-8974, or elk49@pitt.edu. Thank you for your consideration.

Sincerely,

Erica L. Kolat
(724) 986-8974
elk49@pitt.edu

March 24, 2014 (Previous e-mail invitation to participate)

Dear Superintendent:

With the support of my committee, Drs. Trovato, Kerr, Kirk, and Bickel, I am conducting a survey of local superintendents to determine the types of blended and online programs, if any, being implemented in traditional school districts, located in Fayette, Greene, and Washington Counties. I would like to invite you to participate in a confidential, web-based survey, which will take approximately 10 minutes of your time to complete. This research study is being performed as partial fulfillment of my doctoral degree in administrative and policy studies at the University of Pittsburgh.

This survey requests district information for the 2012-2013 school year. Any identifying information will be kept confidential. No one other than the researcher will know how you responded to the survey questions. The reported results will not identify you or your school district. Data from this survey will be downloaded to a USB file storage and stored in a locked box for five years in the researcher's home.

You are under no obligation to participate in this research study, and your professional standing will not be affected whether you do or do not choose to participate. Your participation is voluntary, and you are free to withdraw at any time. If you wish to withdraw your participation at any time, the survey responses will not be used for the research study.

There are no foreseeable risks greater than those encountered in everyday life. Your participation may contribute to the knowledge of blended and online learning programs implemented in traditional school districts.

There will be no compensation for participation in this study, nor will you incur any monetary expense by participating in this research study.

Below please find your individualized link to the survey instrument.

[Qualtrics Survey Link will be here.]

Your completion of the survey serves as your consent to participate in the research study; however, you reserve the right to withdraw consent at any time, for any reason.

If you have any questions about your participation in this survey, please contact Ms. Erica Kolat, Doctoral Candidate, University of Pittsburgh, (724) 986-8974, or elk49@pitt.edu. I will share the results of this study at a future Superintendents Advisory Council meeting.

Sincerely,

Erica L. Kolat
(724) 986-8974
elk49@pitt.edu

Appendix E

WEEK TWO FOLLOW-UP

April 6, 2014 (Week Two Follow-Up Phone Call)

Hello, this is Erica Kolat, Doctoral Candidate at the University of Pittsburgh. A few weeks ago, you should have received an email regarding a request to participate in a survey of local superintendents to determine the types of blended and online programs, if any, being implemented in traditional school districts. As of today, I have not received your response. The survey will close in two days, and I wanted to ensure that you had an opportunity to participate. Are there any questions I can answer about your participation in the study?

Thank you for your consideration.

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